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United States
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United States
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Interior

Bureau of
Land
Management

Boise, Idaho

Little Lost River Flood Control Measure Plan

And Environmental Impact Statement

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LITTLE LOST RIVER
FLOOD PREVENTION PROJECT
RC&D MEASURE PLAN/EIS

Sponsored by

Butte Soil Conservation District

High Country RC&D Area

Prepared with assistance from:

U.S. Department of Agriculture

Soil Conservation Service

Arco, Idaho

16-6802-029-043

LITTLE LOST RIVER FLOOD PREVENTION MEASURE PLAN
and
FINAL ENVIRONMENTAL IMPACT STATEMENT

USDA
Soil Conservation Service

USDI
Bureau of Land Management
Idaho Falls, Idaho
(Cooperating Agency)

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ABSTRACT

The Soil Conservation Service, Butte SCD and Watershed Improvement District, proposed to reduce winter flooding in and around the community of Howe, Idaho.

Low winter flows in the stream freeze, blocking the channel. Subsequent flows are forced out of the channel onto surrounding cropland, causing flooding on 1,500 to 7,500 acres. Five alternatives for addressing the flooding problem were evaluated. The proposed measure would divert low winter flows from the channel into an infiltration trench. The stream channel would remain free of ice, allowing normal passage of spring runoff. Approximately 10.5 miles of stream will be dewatered from about December to March.

The affected environment is "described," and the environmental consequences are documented; the mitigation planning process described and the selected mitigation plan presented. Approximately 7 stream miles of Sawmill Creek, a tributary of the Little Lost River will be rehabilitated to mitigate for project impacts.

RC&D Flood Prevention Measure
Little Lost River Measure Plan and
Final Environmental Impact Statement
Butte County, Idaho

Prepared under the Authority of the Secretary's Memorandum No. 1665, including that contained in Sections 31 and 32(e) of Title III of the Bankhead-Jones Farm Tenant Act as amended by Title I, Section 102 of the Food and Agriculture Act of 1962 (Public Law 87-703), and the Soil Conservation Act of 1935 (Public Law 74-46).

Summary

I. Description of the project area and planned actions.

This plan proposes a flood prevention measure to protect the community of Howe, Idaho and adjacent cropland located in central Butte County, Idaho. The goals of the measure are to reduce flooding damages to private cropland, farmsteads and buildings, public roads, bridges and buildings, and community businesses and facilities. Implementation of planned structural measures will have a significant adverse environmental impact and will be considered a major federal action. An environmental impact statement has been prepared and incorporated into the text of this plan. A mitigation plan has been prepared with direct assistance by the Idaho Department of Fish and Game and the Bureau of Land Management. The mitigation plan will compensate for the anticipated adverse impacts of plan installation.

During the winter of 1984-85 a flood event occurred which required emergency construction to alleviate flooding conditions. The Idaho Bureau of Disaster Services, Civil Defense, Army Corps of Engineers, Idaho Army National Guard, Butte County, and private contractors

participated in construction. SCS, Bureau of Land Management, and Idaho Fish & Game provided technical assistance. As a result, project costs have been reduced from $449,600 to $253,100.

The remaining structural flood prevention measure costs are $93,800. The mitigation measures remain at $87,000. Total administrative and technical assistance costs are $54,300. The federal share is $52,300 and the local share is $2,000. Land rights and easements costs are estimated at $18,000. These costs will be borne 100 percent by local funds.

II. Alternatives and impacts

Four structural alternatives for flood prevention and a no action alternative were identified and evaluated. Each of the structural alternatives would achieve the same level of flood protection, but each has significantly different installation costs. The selected structural plan emphasizes National Economic Development (NED) objectives. The combined NED and mitigation alternatives emphasize economic development and resource protection and maintenance.

III. Agencies, institutions, and interested parties from whom written comments were requested:

U.S. Bureau of Reclamation
U.S. Army Corps of Engineers
USDA Forest Service
U.S. Agricultural Research Service
U.S. Agricultural Stabilization and Conservation Service
U.S. Fish and Wildlife Service
U.S. Environmental Protection Agency
U.S. Bureau of Land Management

Governor of Idaho
Idaho Department of Health and Welfare
Idaho State Soil Conservation Commission
Idaho State Department of Fish and Game
University of Idaho
Idaho State Department of Lands
Division of Financial Management, State of Idaho
Butte County Commissioners
High Country RC&D Council
Butte Soil Conservation District
Little Lost River Watershed Improvement District

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FINAL
LITTLE LOST RIVER FLOOD PREVENTION
and
ENVIRONMENTAL IMPACT STATEMENT

I. PLANNING AREA AND RESOURCES

A. Planning Area

The planning area consists of private, state, and federal land as delineated on the General Location Map, Figure 1, page 2. Federal lands involved are presently administered by BLM from the Idaho Falls District Office.

The Little Lost River Watershed Improvement District (WID) was formed in 1977 for the purpose of controlling the flooding of the Little Lost River during the winter months (December to March). The area served by the WID is in the vicinity of Howe, Butte County, Idaho. The Howe area is an agricultural community. Crops grown in the area are principally used to support the local livestock industry.

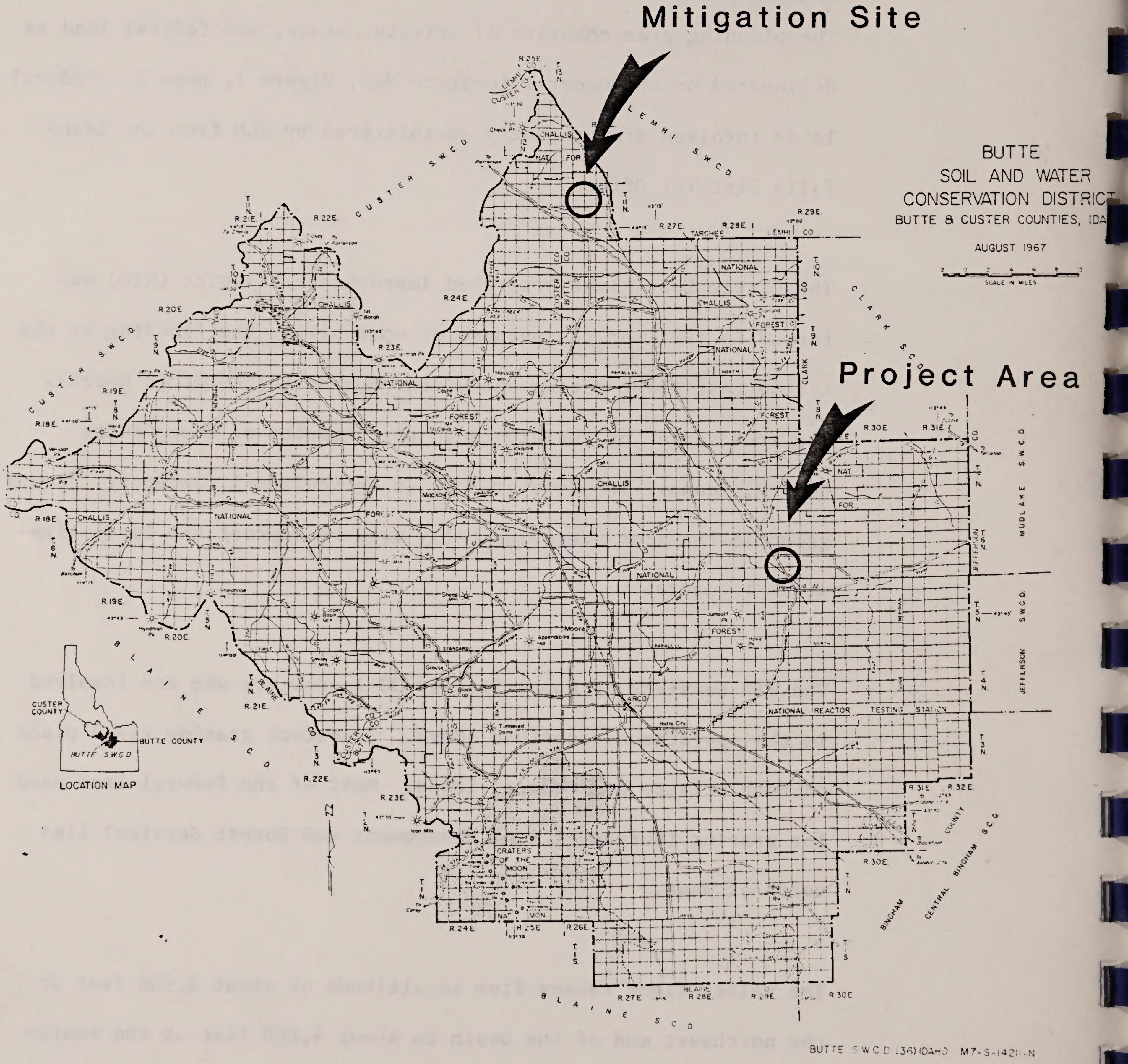
The WID consists of approximately 30 landowners who are involved in the operations described above. Livestock grazing takes place on both private and federal lands. Most of the federal land used for grazing (Bureau of Land Management and Forest Service) lies north of Howe.

The valley floor ranges from an altitude of about 6,500 feet at the northwest end of the basin to about 4,800 feet at the southeast end at Howe. The Little Lost River is formed by the

Figure 1

GENERAL LOCATION

MAP



confluence of Sawmill and Summit Creeks about 20 to 22 miles northwest of the project area. Dry and Wet Creeks are important tributaries rising in the Lost River Range in the northwest corner of the basin. The Little Lost River flows southeast down the valley with little stream meandering. The river flows out of the project area approximately 3 miles south of Howe and sinks through the lava flows into the Snake River aquifer. This area is known as the Little Lost River Sinks.

B. Evaluation of Resource Capabilities

1. Climate - The climate of the basin is characteristic of that of intermountain basins in the Northwest, warm and dry in the summer, cold with precipitation mostly as snow in the winter. The average annual temperature for December, January, and February is 15° F. with periods of temperatures of -10° to -30° F. The average annual precipitation is 8.2 inches. The effective precipitation is much less. The average frost free period in Howe is about 100 days.

2. Soils - Description of soils in the benefited, cropland area

   Soil Group A

   Irrigated Pasture and Hayland in medium textured soils.

   The unit is made up of the Arco, Bereniceton, and Blackfoot soil series on 0-2 percent slopes. They are bottomland soils of medium textured loams and silt loams. A seasonal water table fluctuates between 3 and 5 feet. Longevity of alfalfa stands may be limited to 5 to 6 years by the water table. The soils are over 60 inches deep and erosion hazard is slight. Irrigated crops consist of alfalfa, pasture, and small grain.

Soil Group B

Irrigated Pasture and Hayland on Heavy Textured Soils.

There are bottomland soils on 0-2 percent slopes. The unit is made up of Blackfoot loam, Fury clay, and clay loams. A seasonal water table fluctuates between depths of 1 and 3 feet, making the soils poorly drained. Alfalfa growth may be limited by the high water table. The soils are over 60 inches deep and erosion hazard is slight. Intake rates are slow on this unit. Irrigated crops consist of alfalfa, pasture, and small grains.

Soil Group C

Lost River soil on range, 0-2 percent slopes

The unit is made up of Siri-Fallert and Whiteknob complexes. These are gravelly to very gravelly loam soils. They become extremely gravelly below 12 inches on the Fallert series and have a very gravelly loam lime layer below 12 inches in the Siri series. There are no problems from a water table, the soils are well drained and are being used for grazing. Principal vegetation is big sagebrush, sandberg bluegrass, squirreltail, rabbitbrush, black sagebrush, and bluebunch wheatgrass.

3. Water

Little Lost River:

Little Lost River water is used for irrigation during the growing season. A USGS gaging station at elevation 5,025 approximately 6.5 miles northwest of Howe was used to obtain stream flows. The station is downstream of the proposed construction site. January and February flows have varied from 22 cfs to 57 cfs at the station. The highest recorded summer (August) flow was 450 cfs. The water in the river is cold and generally runs clear.

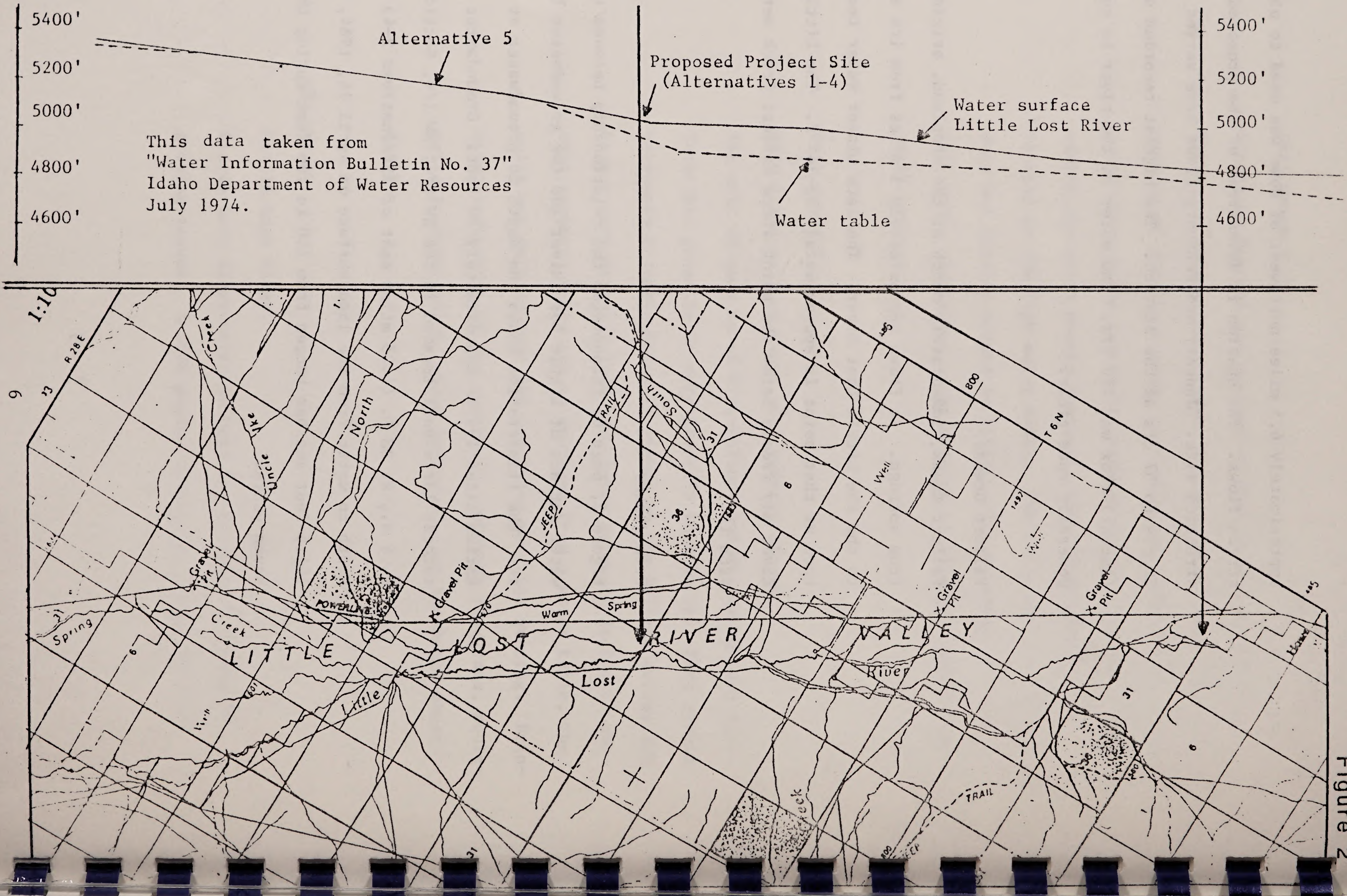
Fallert Creek:

Fallert Creek, immediately north of the cropland, originates from springs. It flows approximately 3 miles from its source to the the Little Lost River. The late winter water temperature at that point is approximately 32-34° F. The Little Lost River may freeze below the point where Fallert Creek merges with it.

Groundwater

Figure 2, page 6, illustrates the relationship between the water surface of Little Lost River and the groundwater beneath it. The illustration shows the depth to groundwater at Alternative sites 1-4 is approximately 70 feet. Groundwater records for a well located in the SW 1/4, NW 1/4, Section 1, T. 6 N., R. 28 E. (1.25 miles east of Alternatives 2-4) show a depth to water from the land surface on April 16, 1984, of 161.6 feet and has ranged from 160 to 166 feet during the past seven years.

Relationship between water surface elevations and water table elevations in the Little Lost River Valley



This data taken from "Water Information Bulletin No. 37" Idaho Department of Water Resources July 1974.

Figure 2

4. Water Quality

Available water quality data indicates the waters of the Little Lost River above Howe meet the minimum water quality standards set by the State of Idaho. However, water quality below Howe during flooding is degraded. Contamination from livestock wastes is common during flooding events.

5. Fish and Wildlife

The Little Lost River and adjacent lands are of considerable value to wildlife. Stream bank riparian habitat is the most valuable and most limited. The density and diversity of wildlife species tends to be higher at the land-water interface than in adjacent uplands, especially in arid climates (Odum, 1979).

Mallards and green-winged teal are the primary waterfowl using the cover adjacent to the Little Lost River for nesting. Other water-oriented wildlife include beaver, muskrat, and possibly mink.

Upland wildlife species which depend upon the riparian habitat, as well as other habitats, include ring-necked pheasant, mourning dove, Hungarian partridge, mountain cottontail, pygmy rabbit, and deer mouse.

Upland wildlife species that use the sagebrush and riparian habitats include sage grouse, pronghorn antelope, jackrabbit, badger, coyote, and wintering mule deer. Raptors using the project area include bald and golden eagles, red-tailed hawk, American kestrel, ferruginous hawk, rough-legged hawk, and great horned owl.

Four species of trout are known to occur in the Little Lost River. These are rainbow, bull, brook, and cutthroat trout. A stream survey by BLM and SCS conducted in October 1983 determined the condition of the Little Lost River downstream from the proposed alternatives sites in Section 3, T. 6 N., R. 28 E. Table A, page 9, summarizes the physical condition of the stream and stream side or riparian habitat for a 10.5 mile stretch of Little Lost River below the proposed diversion site, Alternatives 2-4. Fish populations in the Little Lost River were assessed by personnel of the Idaho Fish and Game Department and BLM. Results are as follows:

a. Three miles upstream from Howe (2 sample stations) trout populations averaged 323 trout [1] per mile (trout numbers range from 246 to 440), average length of trout 9.2 inches (trout lengths range from 6.0 to 12.5 inches).

b. 1.2 miles below the proposed diversion in section 3 and 2.5 miles above this proposed diversion (2 sample stations) trout populations averaged 519 trout [1] per mile (trout numbers range from 422 to 616), average length of trout 6.9 inches (trout lengths range from 2.0 to 12 inches).

---

[1] Trout species present include wild rainbow (predominate), bull, and brook.

TABLE A - Little Lost River Condition Survey 1/

Riparian Cover Condition 2/	River Miles
Very Poor	1.2
Poor	1.5
Fair	3.8
Good	2.5
Excellent	0.3
Not Surveyed	1.2
	10.5

Pool-Riffle Ratio Condition 3/	River Miles
Poor	5.9
Fair	3.4
Good	0.0
Not Surveyed	1.2
TOTAL	10.5

1/ Survey conducted by Mike W. Anderson, Biologist, SCS, Boise, Idaho and James A. Esget, Hydrologist, BLM, Idaho Falls, Idaho. Detailed survey information by stream segment is located at SCS State Office, Boise, Idaho.

2/ Riparian Condition Classes

Very Poor - very heavy cattle impact-riparian virtually eliminated

Poor - Perennial vegetation 0-10' wide, discontinuous, having heavy cattle impact or is a poor protector of the stream banks.

Fair - Perennial vegetation 5-20' wide. May contain only shrubs, partially continuous (some livestock impacts).

Good - Perennial vegetation 15'-50' wide. Trees, shrubs, and grass mostly continuous.

Excellent - Perennial vegetation 50' or wider, high potential for wildlife use. Contains tree and shrub vegetation types.

3/ Pool to Riffle Ratio

Poor - within the range 0-19% or 81-100%

Fair - within the range 21-39% or 61-80%

Good - within the range 40-60%

Three fish migration barriers (all irrigation diversions) occur in the Little Lost River below the diversion site for Alternatives 2-4. The first major concrete irrigation diversion is .8 mile downstream and can divert 80-100 cfs *when available* into three unscreened irrigation canals. The 80 percent chance, mean monthly flow, for the month of August, for the River at this diversion is only 42 cfs. The other major concrete diversion is 6.1 miles downstream and can divert 40 cfs into two unscreened irrigation canals. The third, a small structure, is located 2.0 miles downstream and diverts water into a single irrigation canal. When in operation, this structure would allow passage for fish up and downstream, however, the canal is not screened. These structures are in operation from the beginning of May to the end of October.

6. Threatened or Endangered Species

In letters (informal consultation) of August 31, 1983, and March 2, 1983, the United States Department of the Interior, Fish and Wildlife Service (FWS), stated the endangered bald eagle (*Haliaeetus luecocephalus*) and gray wolf (*Canis lupus*) are the only threatened or endangered wildlife species that may occur in the project vicinity, and thus are protected under the Endangered Species Act of 1973, as amended.

The bald eagle is known to winter in the vicinity of Howe, Idaho near the Little Lost River. Concentrations of up to 30 eagles have been observed roosting in dead cottonwood trees in agricultural areas east of Howe. A number of the eagles roost in cottonwood trees along the Little Lost River.

Eagles typically arrive in this area during November, and remain until March. Observations of peak numbers occurred from late November to the end of January. During this winter period they feed primarily on fish, injured or sick waterfowl, and lagomorphs (jackrabbits and cottontail rabbits), or on carrion (mostly antelope and deer). Carrion and lagomorphs become more important as lakes and rivers freeze. A detailed food habit study has not been conducted in the project vicinity, but general observations by landowners and others have been recorded.

The gray wolf has not been observed in this area in recent times. The gray wolf is considered to be a wilderness species and the project area is adjacent to and within a rural agricultural community.

The peregrine falcon, an endangered species, is an occasional migrant in the area. Ferruginous hawks, a common summer resident, are being considered as a candidate for threatened status.

Lists of threatened, endangered, and candidate plant species were published in the Federal Register in December of 1980 and updated on November 28, 1983. In addition, a summary of the current knowledge of threatened and endangered plants in Idaho is found in the "Vascular Plant Species of Concern in Idaho,"1/ published in 1981 and updated in 1983.

During May, June and July of 1978, the Little Lost planning area was surveyed for the BLM 2/ for federally threatened, endangered, and candidate Idaho plant species (Andersen and Hendersen 1978). Table B shows the threatened, endangered, and watch list plants that may be found in the planning area, as updated by D. M. Hendersen (University of Idaho), in April 1984. Each of these listed plants are typically found on wet meadow sites.

The specific construction and mitigation sites were inventoried by a BLM range conservationist in the spring of 1985 to determine the presence of any threatened or endangered plant species. No threatened, endangered or watch list plant species were found on either site.

1/ 1981, Forest, Wildlife and Range Experiment Station, Bulletin No. 34, University of Idaho, Moscow, Idaho 83843.

2/ As part of Little Lost - Birch Creek Range Management EIS.

TABLE B - FEDERALLY THREATENED, ENDANGERED, OR WATCH LIST PLANTS IN THE LITTLE LOST RIVER PLANNING AREA

Common Name	Scientific Name	Federal Standing	State Standing
pussytoes	Antennaria arcuata	Resource Category 2 1/	
white flower pincushion	Coryphantha missouriensis		SWL
naked stemmed gymnosteris	Gymnosteris nudicaulis		SWL

SWL - State Watch List

Sources: Plant Names: SCS, 1978

Federal Standings: Federal Register, November 1983 and December 1980

State Standing: (See footnote 1/ on page 11)

D.M. Hendersen, Botanist, University of Idaho

1/ Resource Category 2 comprises taxa for which information now available indicates that listing the taxa as endangered or threatened is possible but for which substantial data on biological vulnerability and threat(s) are not currently known.

7. Archeological and Historical Resources

In August of 1983 the State Historical Preservation Officer (SHPO) was notified of the proposed measure and provided a map showing alternative locations. The SHPO was asked to identify any known historical or archeological sites in either of the proposed construction sites. They responded indicating there were no known sites. SCS requested BLM conduct a Class III cultural resource inventory of the specific construction sites. The ~~on site investigation determined that no significant cultural and/or archeological resources were found on either the structural or mitigation sites.~~

In May of 1985 the Idaho Falls District Archaeologist examined the sink trench, diversion, and quarry sites. No significant cultural resource evidence was found on the sink trench and diversion sites. There are several identified cultural sites on the quarry site; However damage can be mitigated by having an archaeologist on site during quarry operation. No field examination was conducted on the Sawmill Creek mitigation site because existing inventory data shows no cultural resources in the vicinity and the nature of the work proposed will not have significant ground disturbing impacts.

8. Mining Claims and Oil and Gas Leases

The following table is a summary of claims and leases on the federal land proposed for alternative locations:

Location	Mining Claims	Oil & Gas Leases
SE 1/4 SEC 34, T. 7 N., R. 28 E.	None	I-14183 Simultaneous lease tract
NE 1/4 SEC 3, T. 6 N., R. 28 E.	None	
NW 1/4 SEC 2, T. 6 N., R. 28 E.	None	Simultaneous lease tract
SW 1/4 SEC 21, T. 7 N., R. 28 E.	None Some claims in NE 1/4 & SE 1/4	I-14181

Oil and gas leases have a 4 acre pad for exploration. If oil/gas is discovered, additional area will be needed for pipelines and roads. Leasees will be informed of the project and the proposed site location.

Project action will not impact any mining claims.

C. Land Use

The planning area includes agricultural land, rangeland, riparian lands, and stream fishery. The rangeland predominates the non-agricultural portion of the planning area and adjacent areas. The riparian vegetation type throughout the planning area is that found along rivers, streams, canals, etc., and is dependent upon additional moisture from that water course for its existence.

1. Agricultural Lands

The agricultural lands (approximately 5,580 acres irrigated and 1,385 acres non-irrigated) are located on relatively flat (0-2 percent) flood plain soils. These soils consist of deep to moderately deep silt loam soils over gravel or basalt. Irrigation systems include both surface and sprinkler irrigation. Primary source of water is the Little Lost River. Crops grown include alfalfa and barley. On the areas with a full irrigation supply, hay and barley are raised. On areas with a short water supply, barley and pasture are raised. Alfalfa is the dominant crop with barley being used in the rotation during the years when alfalfa has been rotated out.

2. Rangelands

The rangeland is dominated by sagebrush and grass types. These native vegetation types (over 90 percent) are found around the planning area and adjacent to the riparian vegetation at the proposed structure sites. The average species composition for the sagebrush/grass type in its present condition is 25-35 percent grass, 55-70 percent shrubs, and 3-8 percent forbs.

Wyoming big sagebrush is the most common species in the sagebrush type. Other shrub species include black sagebrush, shadscale saltbush, and winter fat. The major understory grass species is bluebunch wheatgrass. Other important grasses and forbs are Sandburg bluegrass, Indian ricegrass, bottlebrush squirreltail, and Hoods phlox.

3. Riparian/Stream

The riparian type covers less than 1 percent of the planning area (approximately 60 acres). The composition of the vegetation type varies widely throughout the planning area. The dominant plants include: cottonwood, black birch, willows, woods rose, rabbitbrush, watercress, giant wildrye, sedges, Kentucky bluegrass, and cattails. The following plants occur with riparian vegetation but are less dependent upon water: Rocky Mountain juniper, greasewood, basin big sagebrush, and sod wheatgrass.

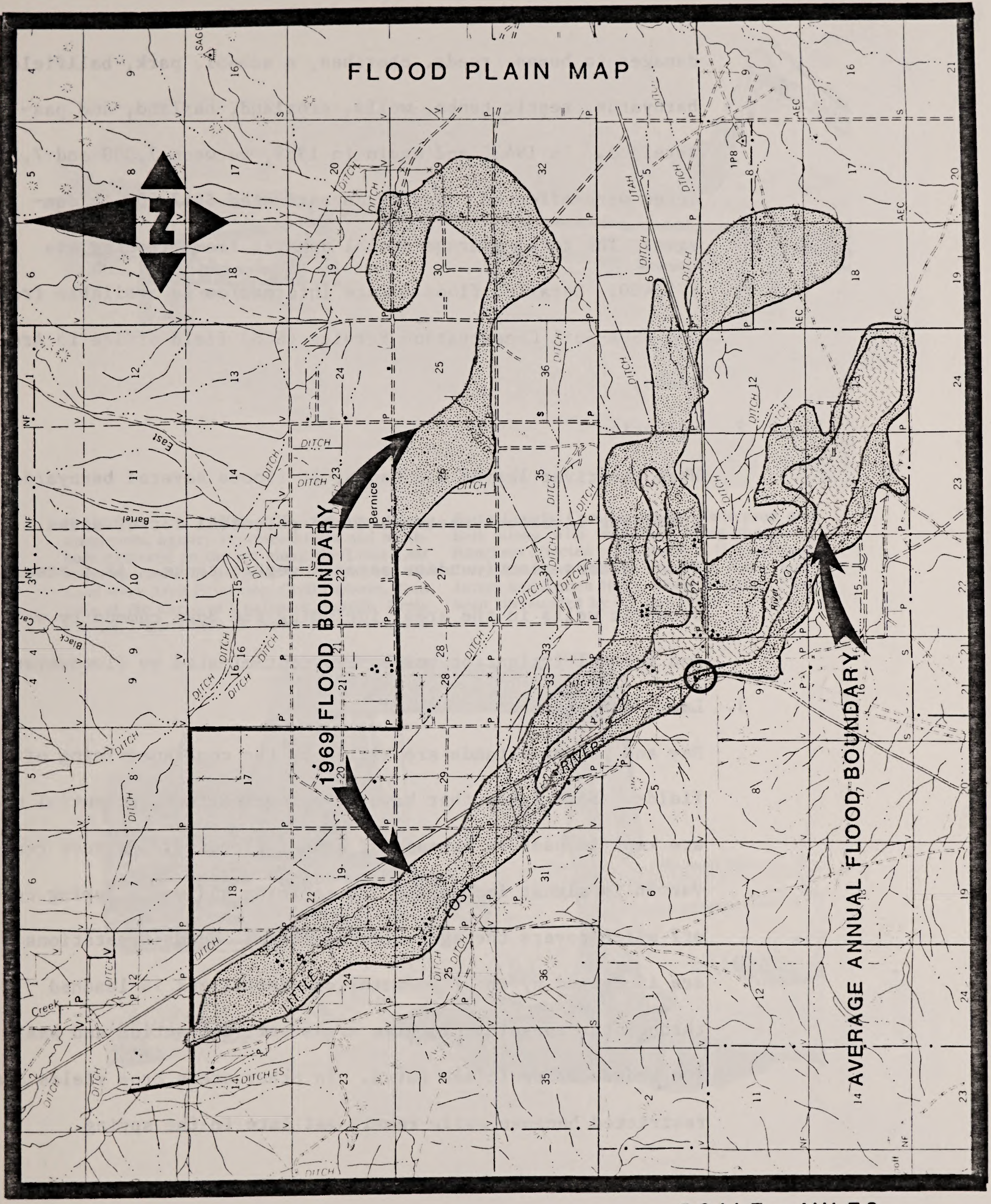
II. Problems and Opportunities

A. Problems

1. Flooding

Damages from winter floods along the Little Lost River are an annual event. Reference Figure 3, page 17. The channel gradient upstream of the flood prone area is steep enough to maintain stream velocities which generally do not freeze during the winter. As the river channel becomes flatter, and velocities slow, water in the channel freezes. Ice builds up in the channel, forming ice jams and blocking the channel. Subsequent flows are forced out of the channel and flooding

LITTLE LOST RIVER FLOOD CONTROL PROJECT



SCALE : MILES

1 ½ 0 1 2 3 MI

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

JULY 1984

occurs. This annual occurrence normally affects from 1,500 to 2,000 acres, causing an estimated $56,000 in average annual damages to homes, roads, churches, a school, park, ballfield, barnyards, septic tanks, wells, cropland, hayland, and pastureland. In 1943, and again in 1969, between 7,000 and 7,500 acres were affected, causing an estimated $442,600 in damages. The total average annual damages from flooding are $75,400. Detailed flood damage information is available from the USDA-Soil Conservation Service (SCS) field office in Arco, Idaho.

2. Pollution

When the river leaves the banks, it floods several barnyards spreading livestock wastes and the potential for diseases. Flood waters also inundate several septic tanks. As a result, domestic wells in the area, including the Howe community well and several irrigation wells, are contaminated by floodwater.

3. Land Management

Hay and pasture stands are killed by the continued icing of fields. Some lands that have other agricultural potential use are kept in pasture because of annual flooding. Pasture renovation is almost impossible due to icing and early spring runoff which covers the agricultural lands. Weed infestations are increased by the floodwater and fertilizer is leached through the topsoil. In some areas soil compaction and sealing reduce water intake rates. In other areas crop yields are restricted because soils remain wet late in the spring.

PHOTOS AND CAPTIONS FROM THE ARCO ADVERTISER, March 17, 1983, USED BY PERMISSION

WAITING ON THE ICE—County Commissioners, agency representatives and neighbors gathered on the ice along the Little Lost River to watch the progress of ice removal. On hand were Arch Browning, Civil Defense, Tom Tate of the Corps of Engineers, Seattle, Ernie Carlson Department of Water Resources, and Butte County Commissioners Andreason and Bell, along with neighbors along the river. Ranchers affected by the water at Howe include Jerry Pancheri, Robert Mays and down river, James and Emlen Mays, whose buildings have been surrounded by ice and water.

A HUGE BACKHOE BELONGING TO GROVER CONSTRUCTION CO. was moved to the bank of the river where it was used to clear ice from the channel. First attemps succeeded only in cutting the top few inches of ice. Moving to an area where a charge of dynamite had broken the ice, the equipment was able to get to the bottom of the channel, removing huge blocks of two-foot thick ice from the channel.

LITTLE LOST RIVER FLOODING

1969

Flooding of Roads,

Farmsteads, and Homes

Little Lost River flooding

in 1969, damaged roads,

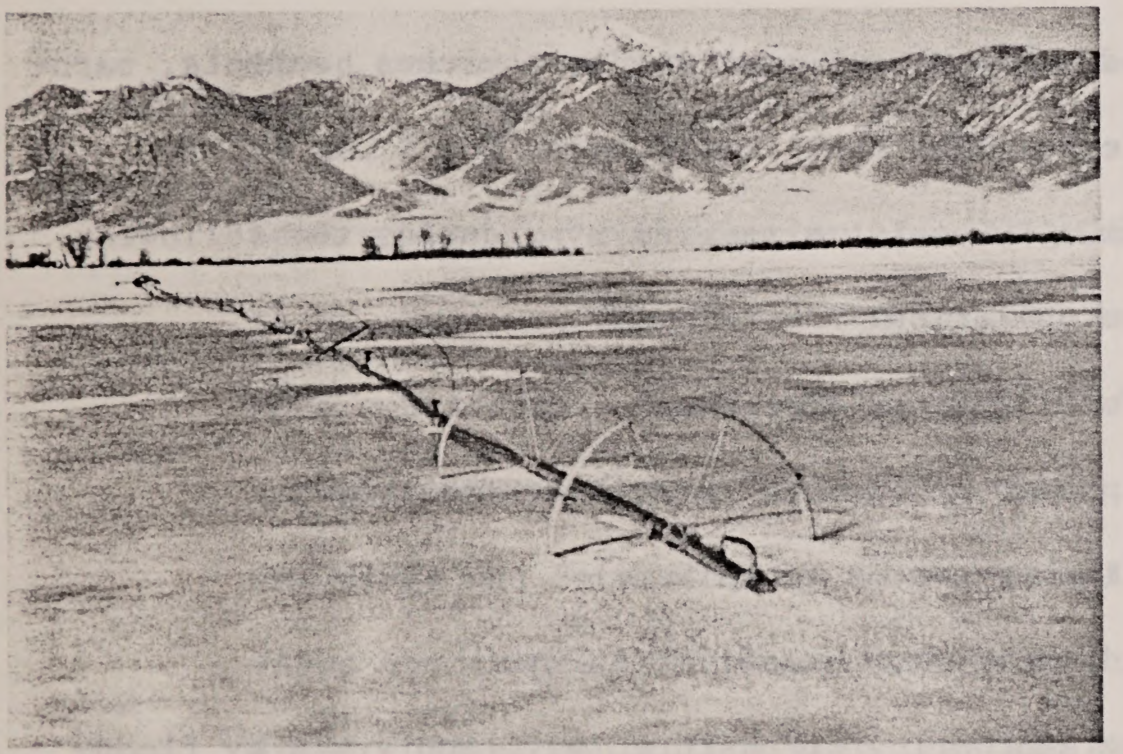
farmsteads, homes, and

farmland.

RIGHT - 1962 Infiltration

Test on Little Lost River

at the site of Alternative 2-4.



LEFT and BELOW -

1984 Flooding of

Cropland and Threat

to a Diked Farmstead

4. Transportation

Three miles of county farm-to-market roads are blocked by ice and water during flooding. To remain open during flooding, dozers are used to remove ice from primary county roads. This may be required up to four times daily during severe cold weather. Roadside erosion is a common occurrence. State Highway 22-28 has been intentionally breached twice in the past several years to allow floodwater to flow out of the areas. The icing of roads causes severe safety hazards for vehicle traffic, especially school buses.

B. Opportunities

1. Reduce flood damages to homes, roads, churches, schools, barnyards, and cropland.
2. Improve community health standards by reducing the following hazards from pollution:
    a. Spread of livestock diseases.
    b. Contamination of domestic and irrigation wells.
    c. Inundation of septic tanks.
3. Improve land management capabilities by:
    a. Reducing smothering of pasture, hay, and grain by floodwaters.
    b. Reduce frost heaving of plants by freezing.
    c. Reduce loss of fertilizer by leaching.
    d. Reduce spread of noxious weed seed.
    e. Reduce soil erosion and compaction.
    f. Allow a change in cropping system from low quality pasture to long-term alfalfa.

4. Improve transportation by:

   a. Preventing road washouts or blockage.

   b. Reduce safety hazards due to icing.

   c. Reduce O&M costs of the transportation system and maintenance of equipment.

III. FORMULATION OF ALTERNATIVES

As discussed in the problems section, page 16, the channel in the flood prone area is blocked by ice during winter freezing periods when the stream flows are low. Subsequent flows are forced out of the channel by the ice and flooding occurs. Both on site and upstream flood prevention alternatives were limited by the physical topography of the flood prone area. This broad, flat area did not provide an opportunity for construction of a large flood water retention structure. However, channelization, dikes, and/or levees in the channel were considered. Based upon on site studies and observations of actual flooding events, and public input, channelization or diking of the river was determined to be an unviable alternative. Low stream flows and channel icing would still occur in these structures. A diked channel would fill with ice just as the natural channel does, and flooding would continue to be a problem. It became apparent that upstream measures were necessary to solve the problem.

Two methods of water control were considered when developing alternatives; flood water retention structures and methods of controlling low winter flows. Again the physical topography of the valley floor limited consideration of flood water storage structures. As in the flood impact area, topography of the land did not provide opportunity for their construction. The first effective sites available were too high in the watershed to provide adequate control of winter runoff. Cost was another major consideration.

The second approach addressed preventing ice formation in the channel of the flood prone area. It is during winter periods that low flows freeze in the river channel. If formation of ice could be prevented, then the river channel would remain open, and spring runoff could pass through the flood prone area unrestricted. After considerable study and input by the public, it was concluded the only way to prevent ice formation was to prevent low winter flows during the freezing period. When stream flows enter the flood prone area, velocities are slower because of the flatter stream gradient. Any water in the channel during the critical period freezes. Observation over a 20 year period in this and adjacent watersheds has verified this hypothesis. Alternatives identified from this point considered complete diversion of low stream flows during the freezing period. The river would be dewatered from a point of diversion downstream to the "sinks" where the river naturally infiltrates the soil profile and disappears (page 3). When temperatures moderate, and the freezing period passes, all flows would be returned to the river. Any alternative considered would be designed to divert only those flows during that period, and not be designed to function as a structure to hold high spring runoff as a flood water retention structure would. The environmental consequences of installing such an alternative are discussed beginning on page 36. The consequences of not taking any action to prevent flooding are also discussed as Alternative 1 - Future Without Project, on page 26.

Four structural alternatives were identified which would prevent low flows during the winter. In each case, infiltration of diverted water was a basic hypothesis. Infiltration rates of surface water into the subsoil and aquifer is very rapid in this region. Both the Little Lost River and the Big Lost River, which is in the next watershed, "sink" into the aquifer leaving no surface flows. Numerous other streams and creeks in the area do the same thing. Because infiltration rates are high, facilities designed to hold diverted water while they percolate the soil could be considerably smaller and less expensive to construct. This concept is not new in the region. Several years ago the Idaho National Engineering Laboratory (U.S. Atomic Energy Commission) (AEC) was experiencing similar flooding problems from the Big Lost River on the AEC reservation. At that time diversion structures and infiltration trenches were constructed to accomplish the same task as that desired in this measure. This system has operated successfully since.

Specific on site investigations were conducted to determine the applicability of this method of controlling water on the specific site. A backhoe was used to dig approximately 60 soil pits at the proposed sites. The soils found fall within the following series: Siri, Fallert, Sparmo, Allhands, and M^{c}Caleb. These soils are gravelly loams to very gravelly sandy loams. They can be stony, bouldery, and mildly alkaline or carbonatic. The soils are very deep and well drained. The parent material is alluvium and colluvium from sedimentary and metamorphic rock. Some of the parent material may be heavily influenced by limestone. Gravels and coarse fragments can exceed 60 percent by volume in the soil profile.

The engineering investigations at the alternative sites show these soils are excellent for rapid infiltration, with the removal of the top soil layer (generally 12-15 inches thick).

Actual water infiltration tests were conducted during December 1961 to February 1962. One to two cfs of Little Lost River water was diverted into a 30 x 70 foot oval-shaped pit with a seven-foot depth below the level of Little Lost River. During the test, the average water depth in the pit was three feet. Infiltration rate was 16 cubic feet of water per square foot of soil per day during extremely cold weather conditions.

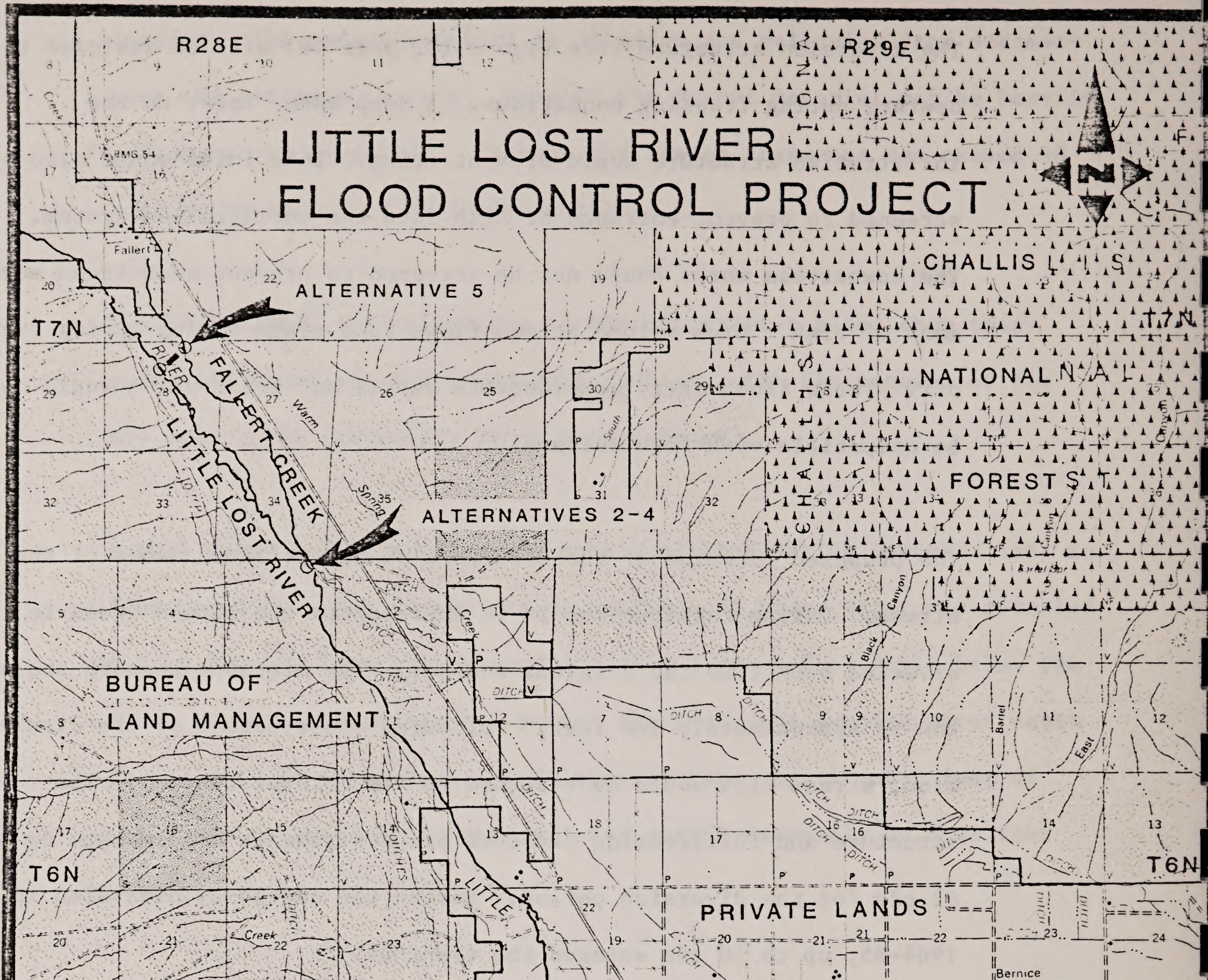
Each of the four alternatives, plus a no action alternative, is discussed beginning on page 26. Figure 4, page 25 locates each proposed alternative. Generally, they can be divided into two groups; on channel and off channel structures. On channel structures are constructed with all physical works in the river. Off channel systems use a diversion structure in the river to divert flows from the river into the infiltration structure. These structures are constructed adjacent to the river.

The diversion structure (see Figure 10, page 46) will be designed to operate during freezing conditions. A deep water inlet to the infiltration structure would prevent icing. This inlet would also be screened to prevent entrance of fish into the infiltration system. The downstream works would not be screened to prevent downstream movement of fish. High volume stream flows take place during spring runoff. These flows carry considerable debris and trash which would not be compatible with fish screens.

The proposed location of the structure places it in an oxbow of the stream. During construction it is anticipated the stream would be diverted back into the original channel. The distance through the oxbow is approximately 100 feet. Following construction of the diversion, stream flow would be returned to its natural channel. The structure and infiltration trenches are designed to accommodate up to 62 cfs for the diversion period. During the emergency diversion in 1984-85, up to 50 cfs entered the trenches.

Another problem with fish screens on the river side of the diversion is ice accumulation and build up on the screens and headworks during the winter months. When normal flows are returned to the river, the headworks must be free of ice. The roll gate design of the structure will operate effectively in these severe conditions. It is also important to point out that irrigation diversions downstream restrict migration of fish into and out of this section of the Little Lost River (see discussion on page 10). Some annual loss of trout by downstream migration past the proposed structure would occur.

FIGURE



SOURCE: U.S. DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SCALE : MILES

1 0 1 2 3 MI.

APRIL 1984

Alternatives 3-5 would be fenced to prevent loss of wildlife or winter recreationists during winter operation. When construction of the structure is completed, disturbed areas would be shaped and revegetated.

A. Alternative 1 - No Action - Future Without Project

Channel icing during winter months and the resultant damages from over land flows would continue to occur. Estimated monetary damages of $75,400 would be incurred annually. Hazards to public safety from flooded roads and homes and potential for pollution of wells by flooding will remain.

Heavy equipment used to break up ice jams through the years has damaged the riparian woody cover along the river. Woody vegetation is removed along one side of the river to gain equipment access to the ice blockage and push it from the channel. About one acre of woody vegetation was removed in January 1983 to facilitate equipment access. Future losses under similar conditions will continue to occur.

B. Alternative 2 - Infiltration Reservoir - On Channel (See Figure 5, page 28.)

A dam and reservoir would be constructed just down stream from the confluence of Fallert Creek and the Little Lost River. The approximate location is shown on the project map, Figure 4, page 25.

Design flow for the December through March infiltration period is 50 cfs. Maximum dam height would be approximately 20 feet and length approximately 4,000 feet. The principal spillway and normal stream flow bypass structure design would accommodate fish passage, pass maximum stream flows, and completely shut off winter flows. Pool size would be approximately 100 surface acres. Vegetation within the pool area would be removed to allow for maximum water infiltration during the impoundment period.

Cost of this alternative is estimated to be $514,500. Annual O&M cost is estimated to be $5,000. Adverse impacts include the dewatering of the lower 10.5 miles of the Little Lost River. This results in the loss of approximately 4,200 trout in this section of river, along with the displacement and loss of some aquatic wildlife (primarily muskrat and beaver). Another impact is the loss of 98 acres of sagebrush type vegetation, two acres of riparian type vegetation, and 3,000 feet of river channel to the structure and reservoir. Further impacts are discussed in Section VI, Formulation and Selection of Mitigation Plan.

C. Alternative 3 - Infiltration Reservoir - Off Channel (See Figure 6, page 29.)

This alternative has the same general physical configuration and location as Alternative 2. However, the entire dam and pond would be moved off channel to the area west of the river. A diversion structure would be required to bring water to the pond. Estimated cost for this alternative is $325,000. Annual O&M cost is estimated to be $2,000. Reference to project map, Figure 4, page 25.

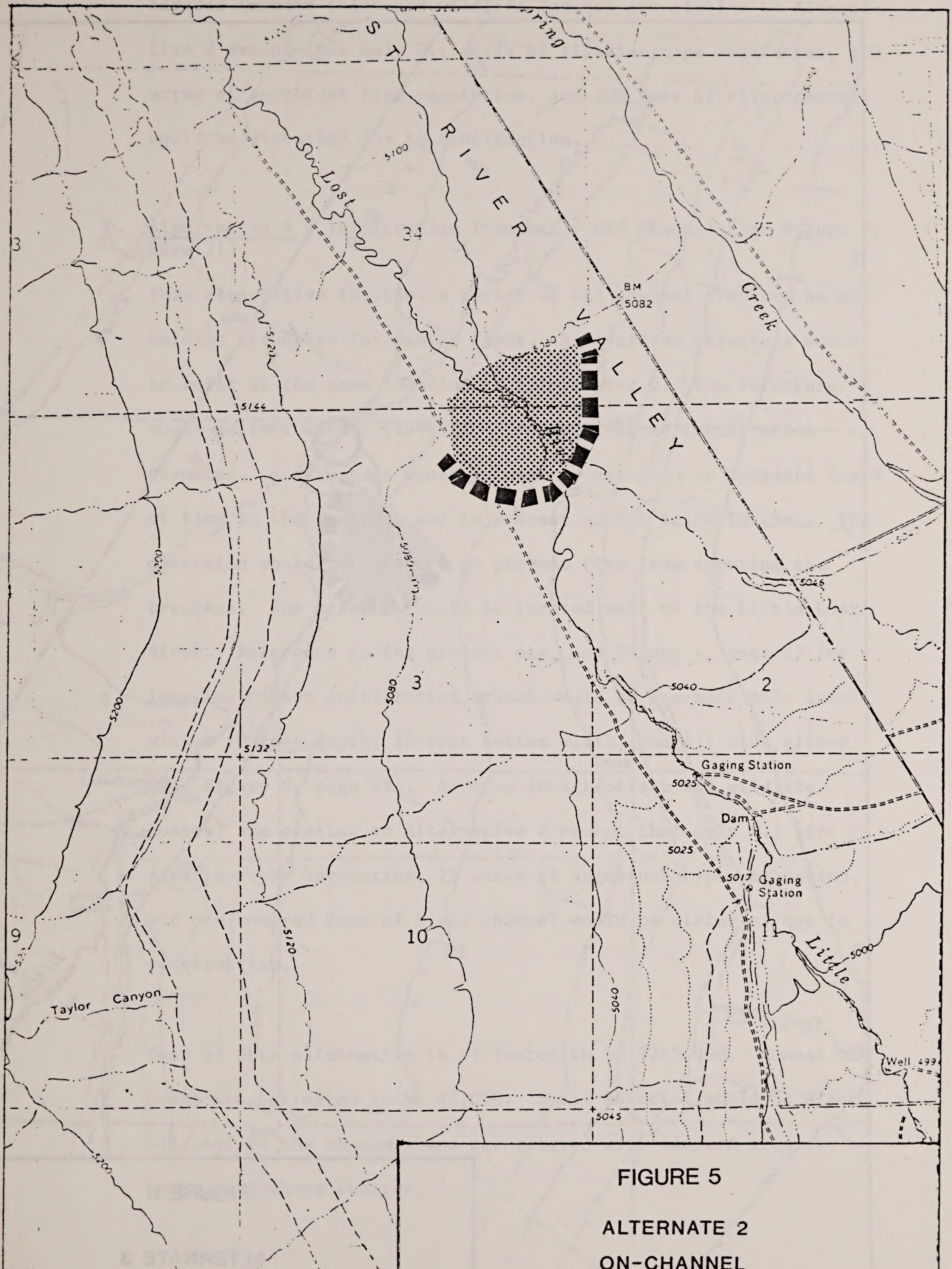


FIGURE 5

ALTERNATE 2
ON-CHANNEL
INFILTRATION RESERVOIR

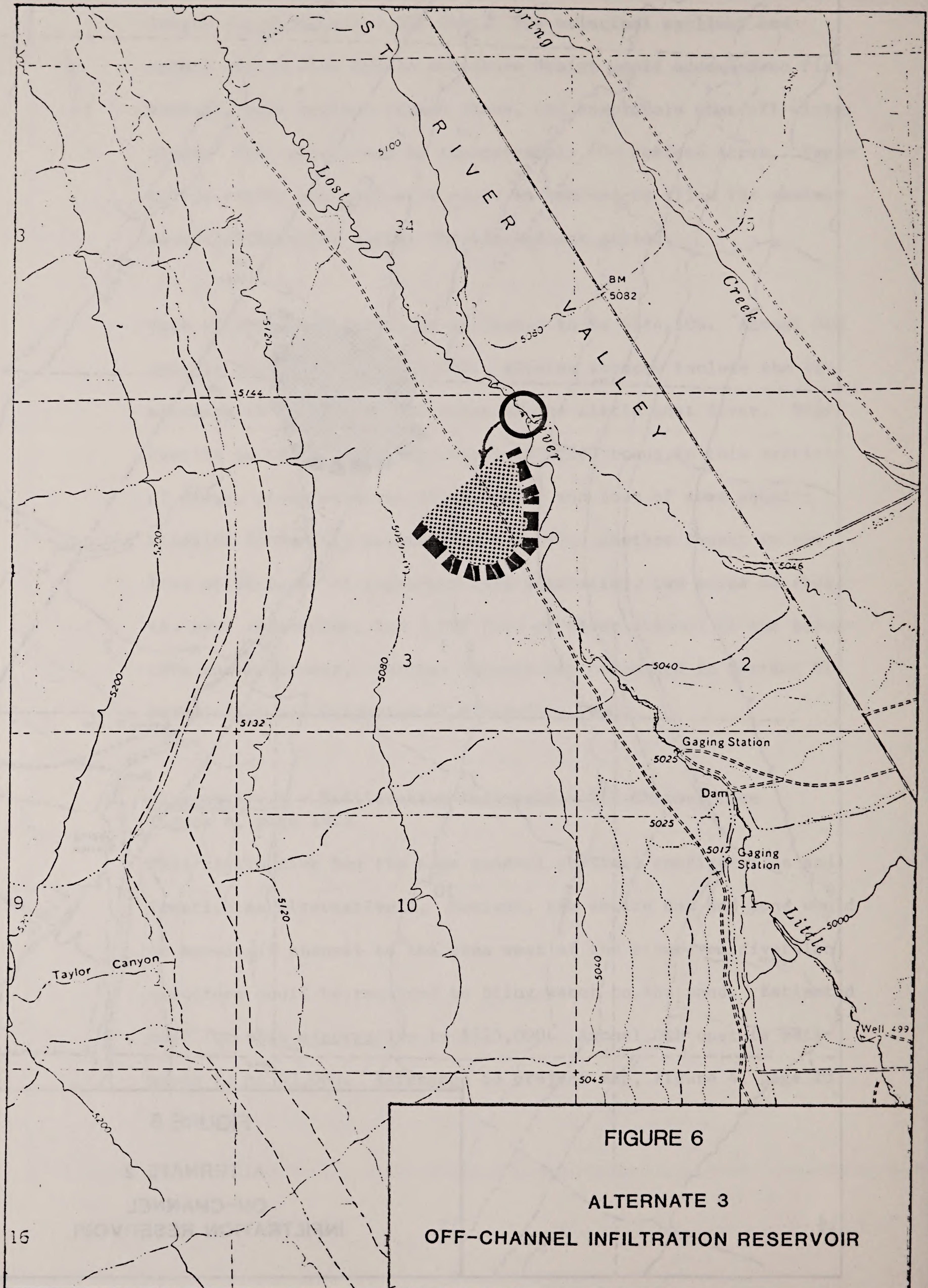


FIGURE 6

ALTERNATE 3

OFF-CHANNEL INFILTRATION RESERVOIR

Adverse impacts (fish and wildlife losses) are similar to Alternative 2 except that only 0.1 acres of riparian type vegetation, 120 acres of sagebrush type vegetation, and 100 feet of river channel would be disturbed due to construction.

D. Alternative 4 - Infiltration Trenches - Off Channel (See Figure 7, page 31).

This alternative includes a series of off channel trenches as the holding structure for winter flows. A diversion structure would be built at the same location as Alternative 2. The structure would deliver winter flows into two constructed infiltration trenches. A structure would be used to maintain an adequate depth of flow in the trenches and to prevent anchor icing in them. The diversion would be screened to prevent fish from entering the trenches. The trenches would be located west of the Little Lost River. Reference to the project map, and Figure 4, page 25 for location. Each infiltration trench would be one-half mile long with a 10-foot depth, 10-foot bottom width, and 4:1 side slopes (See Figure 9, page 45). Adverse impacts (fish and wildlife losses) are similar to Alternative 2 except that only 0.1 acre of riparian type vegetation, 25 acres of sagebrush type vegetation, and one hundred feet of river channel would be disturbed due to construction.

Cost of this alternative is estimated to be $245,000. Annual O&M costs are estimated to be $2,000. Spoil material would be placed adjacent to the channels and revegetated with adapted grasses, forbs, and shrub species.

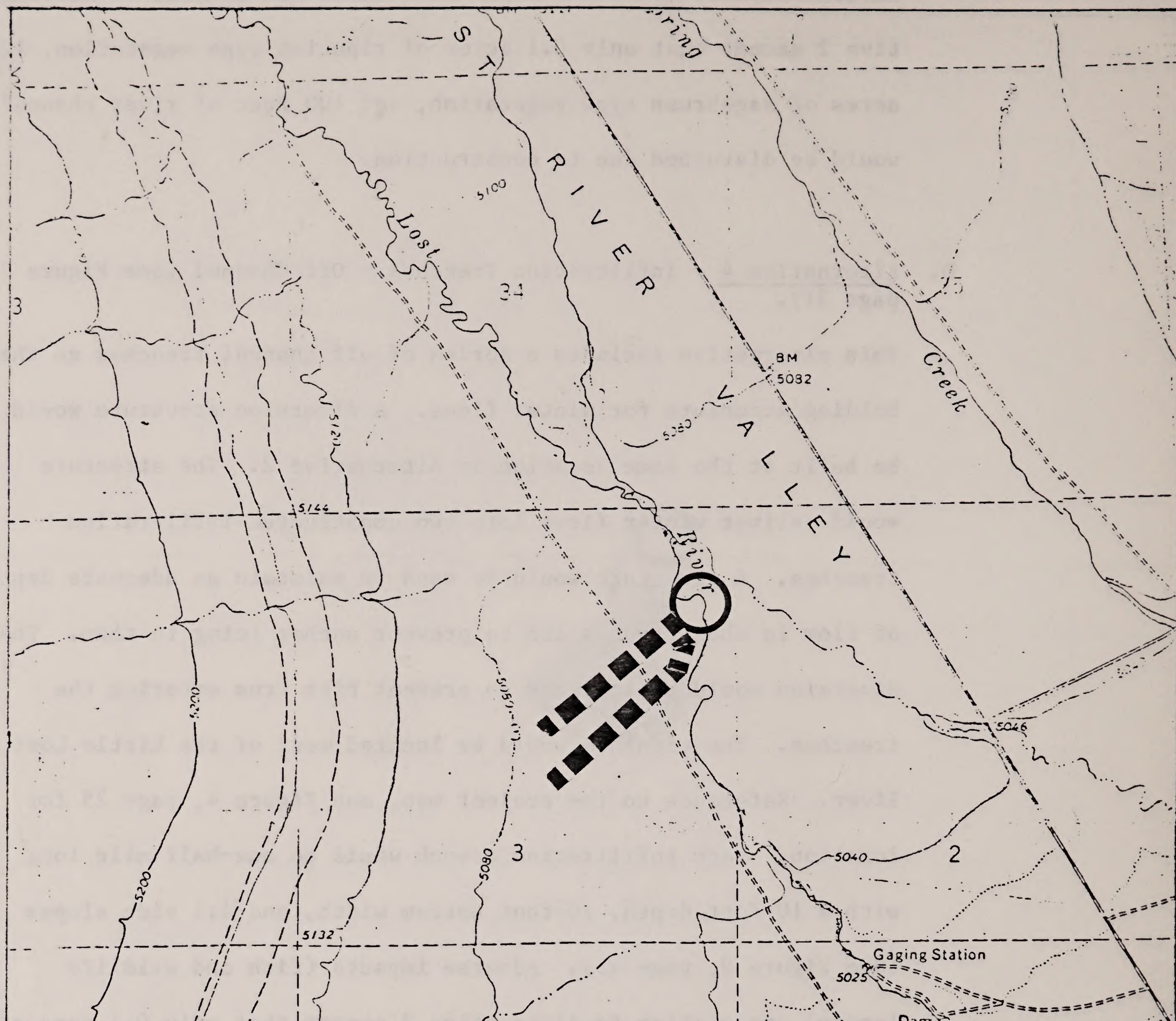


FIGURE 7

ALTERNATE 4
INFILTRATION TRENCHES

E. Alternative 5 - Diversion of Water to Stevens Reservoir (See Figure 8, page 33.)

Two diversion structures would be required upstream from the one described in Alternative 2 to provide sufficient grade for diverted water to reach the reservoir. The diversions would be located in the SW 1/4, Section 21, T. 7 N., R. 28 E. (reference to map, Figure 8 on page 33). The diversions would be screened to prevent fish from entering the channels. Structures would be used in the channel at intervals to maintain a depth of flow to prevent anchor icing of the channel. The reservoir is located between sections 22 and 23, T. 6 N., R. 28 E. Cost of this alternative is estimated to be $356,000. Annual O&M costs are estimated at $5,000.

This alternative would dewater an additional 3.2 miles of the Little Lost River and 3.3 miles of Fallert Creek. This added impact would result in the additional loss of about 3,400 trout and the displacement and loss of some aquatic wildlife (primarily muskrat and beaver). Fallert Creek is an important nursery stream for trout. Other adverse impacts include the loss of 0.2 acres of riparian vegetation type on both rivers, 20 acres of sagebrush type vegetation and disturbance of 200 feet of river channel to the construction of the diversion structures.

F. Permits Required for Alternatives 2-5

1. USDI-BLM Land Use Application and Permit.
2. Idaho Department of Water Resources, Point of Diversion Permit
3. Corps of Engineers, 404 Permit would be required before construction of any of the above Alternatives 2-5. Reference to page 43 for discussion.

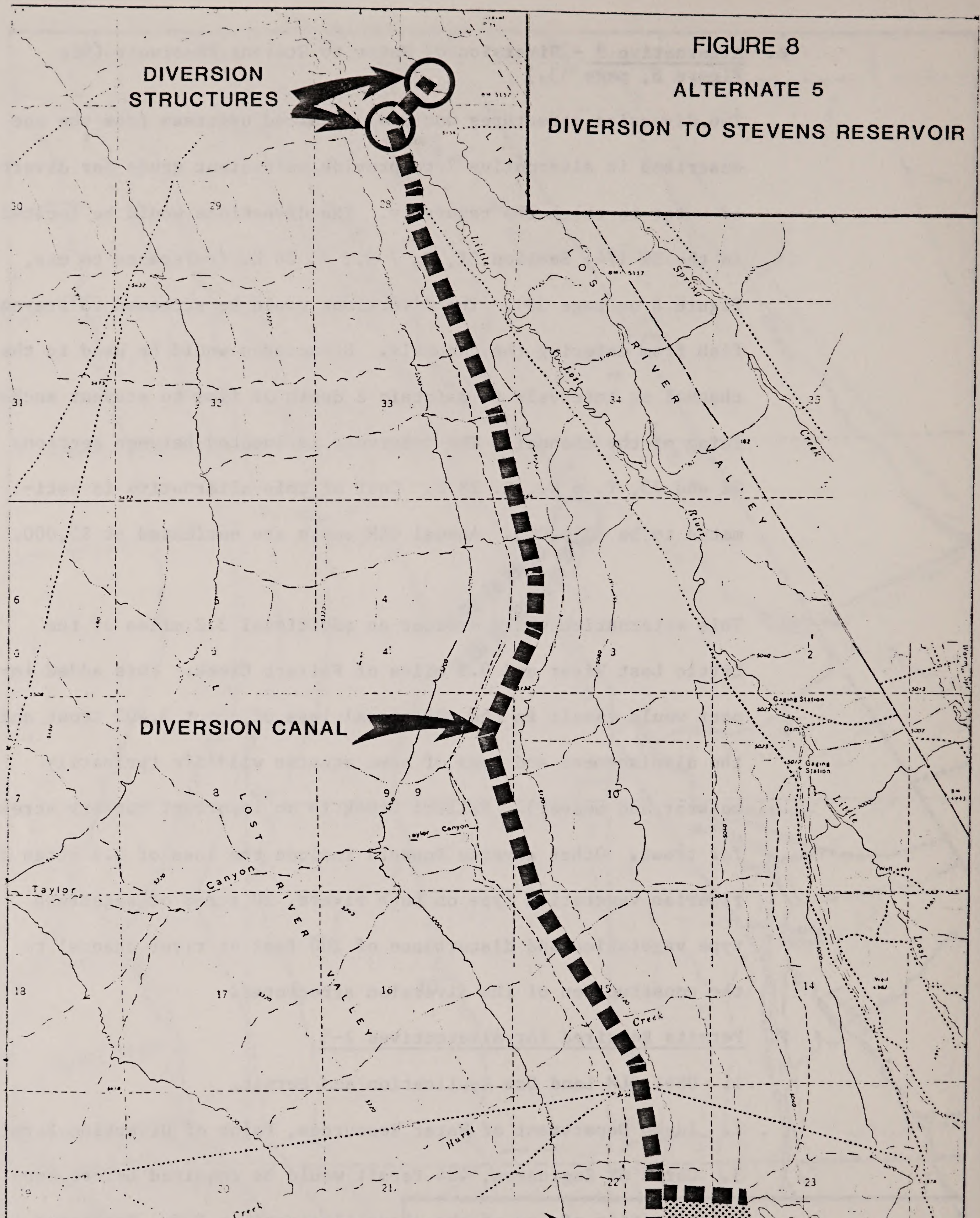


FIGURE 8

ALTERNATE 5

DIVERSION TO STEVENS RESERVOIR

IV. RATIONALE FOR ALTERNATIVE SELECTION

A. Physical Comparison

Appendix A displays a physical comparison of each of the alternatives. In summary, each would achieve the objective of preventing low stream flows during the winter months. Alternative 2, the on channel infiltration reservoir, would have to be designed to pass maximum anticipated stream flows safely. Because of its location above a populated area, it would have a high hazard rating.

Siltation of the reservoir is a particular concern. Any silt carried into the storage area would dramatically reduce infiltration rates. While siltation in the river is not a significant problem, the potential remains.

Alternatives 3, 4, and 5 are off channel systems. Each would utilize an in channel diversion structure to divert water out of the river and into storage/infiltration structures. In either situation, high volume spring runoff or siltation would not be as great a concern. Alternatives 3 and 4 would be at the same location and be generally similar in operation. Alternative 5 would be located an additional 3.2 miles upstream of 3 and 4. It would utilize an existing canal and reservoir, however, considerable construction to enlarge the existing system would be required.

B. Economic Comparison

The anticipated project costs for each alternative are displayed below. While there is a wide margin in costs between the structures, the economic benefits are the same since each achieves the same level of protection.

The cost of each alternative was calculated and evaluated incrementally to determine the optimum economic benefit. The incremental analysis identifies the alternative that derives the greatest net benefit. This alternative is identified as the National Economic Development alternative (NED). The NED maximizes monetary benefits over cost. Measures which make the greatest contribution to the NED objective reduce flooding, sustain long-term soil productivity and reduce the threat to life and health of the population. A summary of the estimated annual flood damages is shown in Appendix B, page 74, and a summary of the incremental analysis is shown in Appendix C, page 75.

Alternative	Construction Cost	Annual Operation & Maintenance
1. No Action		
2. Infiltration Reservoir - On Channel	$514,500	$5,000
3. Infiltration Reservoir - Off Channel	325,000	2,000
4. Infiltration Trenches	245,000	2,000
5. Stevens Reservoir	356,000	5,000

C. Environmental Comparison

Each of the proposed structural alternatives would have the same environmental impact. Only the degree of impact would vary between them. Alternatives 2-4 would dewater 10.5 miles of stream.

Alternative 5 would dewater 13.7 miles of Little Lost River and 3.3 miles of Fallert Creek. Fish population studies (electro shocking) showed that an additional 3,400 trout would be lost by dewatering the additional river and Fallert Creek for this Alternative. A total of 7,600 trout would be adversely impacted by the construction of this Alternative. Early evaluations indicated the selection of this Alternative over Alternatives 2, 3, or 4 to be very unlikely.

Riparian habitat along the river would not be effected by implementation of any of the alternatives. Dewatering the river during dormant winter periods would not effect vegetation.

D. Environmental Consequences

1. Fish and Wildlife

On site electro shocking showed that a native trout population of approximately 4,200 fish would be lost from a 10.5 mile stream reach by installation of Alternatives 2-4. That population would not return to its present level in the dewatered section of the river when the flows return in the spring. The operation of the irrigation structures discussed on page 10 prevents normal migration movements of trout and would seriously hamper the natural restocking of the river. Annual fish losses would be primarily restricted to the .8 mile section between the proposed structure and the first existing irrigation diversion downstream.

While 4,200 trout will be lost by implementation of Alternatives 2-4, the habitat which produces that population must be discussed.

Table A, page 9 displays the condition survey and pool-riffle ratio of the impacted stream reaches. Of the 10.5 miles of river which could be affected by Alternatives 2-4, 2.7 miles have poor to very poor riparian cover condition, 3.8 miles are fair, 2.5 miles have good habitat, and only .3 mile has an excellent condition. One point two (1.2) miles of stream were not inventoried. This stream reach is the lower section of the river that crosses pasture and cropland and provides little or no habitat at all because of farming and livestock impacts.

Pool-riffle ratio which is very important to a strong fishery, rated from fair (3.4 miles) to poor (5.9 miles). Even though population studies of this river segment determined a population of 4,200 fish, its overall fishery habitat would only range from fair to poor.

Wildlife species that will be impacted by the installation and operation of the preferred alternative include: beaver, muskrat, cottontail rabbits, pygmy rabbits, sage grouse, and pronghorn antelope.

Beaver and muskrat will be directly impacted by the dewatering of the lower 10.5 miles of Little Lost River as habitat would be lost and animals displaced. During this period, other waters would be ice covered and displacement would result in some mortality.

Construction activities at the selected alternative site will temporarily disturb small local populations of cottontail rabbits, pygmy rabbits, mallards, green-winged teal, sage grouse, and pronghorn antelope. Some minor amounts of habitat for these animals will be lost or altered, and the resident animals will be displaced to adjacent similar habitats.

Vegetation Types Impacted by Construction

Alternative	Riparian	Rangeland	Stream Length
1	None 1/	None	None
2	2 ac.	98 ac.	3000 ft.
3	0.1 ac. 2/	120 ac.	100 ft. 2/
4	0.1 ac. 2/	50 ac.	100 ft. 2/
5	0.2 ac. 2/		200 ft. 2/

Riparian vegetation is the most significant habitat type for the majority of wildlife species using the planning area. Much of the riparian areas are used by livestock, resulting in habitat degradation for riparian dependent wildlife (see Table A, page 9). Some riparian destruction has occurred during ice blockage removal in past years. During the winter of 1982-83,

---

1/ During winter flooding events, some riparian vegetation is destroyed for equipment access to clean ice blockage.

2/ Disturbed by construction for diversion structures; Riparian - permanent loss, and Stream Length - temporarily disturbed.

about one acre of riparian trees and shrubs were removed to gain equipment access to the river for ice removal. Project action would not impact existing riparian vegetation downstream of the proposed structure

2. Agricultural

Winter flooding occurs annually. When this occurs, crops are often killed by smothering or because of frost heaving. After winter flooding, soils stay wet late into the spring, delaying spring planting. This usually results in reduced crop yields. Pastures consist mainly of grass and shallow rooted legumes. The deep rooted legumes, such as alfalfa, are killed in some areas by flooding. Project action would have a positive impact on agricultural lands.

3. Recreation

Idaho Department of Fish and Game estimates that the Little Lost River flowing across private lands provides 53 angler days per year per mile of stream [1]. They also state the river flowing across public lands supports twice the fishing of private lands, or 106 angler days per year per mile of stream. With the installation of any of Alternatives 2-4, a total of 721 angler days per year will be lost.

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[1] Inventory of Lakes, Reservoirs and Streams of Idaho Describing Fisheries, Pollution and Access. Idaho Department of Fish and Game, September 1972.

Note: The values would be considered minimums due to recreational use increases which have occurred between 1972 to 1985.

The installation of Alternative 5 would result in the winter dewatering of 17 miles of stream and loss of 1,410 angler days per year.

4. Water Quality

The installation of any of the action alternatives will not adversely impact the surface or ground water quality of the Little Lost River. James Esget, Hydrologist, BLM, and Walton Law, Water Quality Specialist, U.S. Geological Survey, do not believe there will be any significant adverse impacts to groundwater quality from infiltrating the Little Lost River through the installation of the action alternatives. This water (Little Lost River) will eventually infiltrate (Little Lost Sinks) and reach the groundwater table. The depths to groundwater (Figure 2, page 6) in the Little Lost River Valley below the proposed alternative sites are not expected to rise due to installation of the action alternatives. The prevention of flooding of corrals will improve water quality of surface waters. Project action will have a positive impact on water quality.

5. Threatened and Endangered Species

The construction and operation of the Little Lost River flood control alternatives should not result in any short-term or long-term impacts to the wintering bald eagles. Some of the bald eagles are roosting in cottonwoods along the river, but the majority roost in dead cottonwoods 2.5 miles east of Howe on a farm.

During the period of project operation (December through March), most bodies of water are iced over, reducing fish and waterfowl as a possible dietary component of the wintering bald eagles. Observations in the field indicate that carrion (deer and antelope) and lagomorphs (jackrabbits and cottontail rabbits) are the primary dietary component of the wintering bald eagles.

The area has been censused for eagles during the past 4 years during the mid-winter. The census was sponsored by the National Wildlife Federation. Eagle numbers have increased yearly during that period.

Construction of the planned facilities should not adversely impact the peregrine falcon or ferruginous hawks.

The alternative sites were surveyed (May 1985) for Antennaria arcuata (pussy toes) a federally listed Resource Category 2 plant, and Idaho watch list plants known to occur in the area. D. M. Hendersen, a botanist from the University of Idaho, did not think any of the listed plants would be present as they prefer wet meadow sites. The May 1985 survey by BLM range conservationists showed this assumption to be true as these plants were not found on the construction site or mitigation site.

6. Others

None of the alternatives were found to adversely impact the goals of protecting prime farmlands, cultural resources, wetlands, and proposed or listed threatened or endangered plants and animals.

Labor, capital resources, and energy used by these planned actions will be irretrievably and irreversibly committed.

7. Conclusion:

It was concluded, following evaluation of the anticipated environmental impacts of the proposals, that installation of any of the alternatives would result in a major federal action and must be mitigated. From 10.5 to 17.0 miles of stream would be dewatered during December to March, killing the total fish population in that stream reach.

V. SELECTED STRUCTURAL ALTERNATIVE

A. Structural Measure

Alternative #4, Off-Channel Infiltration Trenches, is the selected NED measure. As described on page 30, this alternative includes a diversion structure in the channel and 2 infiltration channels. Total footage for the channels is approximately 6,400 feet. Low winter flows will be diverted from the channel into the trenches which are designed to store and allow infiltration of the diverted water. A deep water diversion structure design will allow the water to be diverted from the creek into the channels during the freezing period without being affected by ice. Reference to Figures 9 and 10, pages 45 and 46.

As discussed earlier, the trenches will be fenced to prevent accidental loss of wildlife during the winter months. The spoil area will be seeded to native and introduced species of grass and forbs.

B. Risk and Uncertainty

There are three areas of risk and uncertainty with installation of the selected measure. These concerns would have applied to any of the alternatives.

1. Icing of the diversion structure during the winter months could block entrance of runoff into the infiltration trenches. Opening of the control gates to allow flows back into the river could also be hampered. Design of the system has

taken this potential problem into consideration. It is believed this problem can be satisfactorily overcome.

2. Siltation in the infiltration trenches could reduce the infiltration rate. After careful evaluation, it was concluded runoff during December to March, when the flows would be diverted into the trenches, would carry little sediment. The design for the trenches would include a desiltation basin before entering the system. Spring runoff that would carry more silt would not enter the trenches. Approximately 2-4 inches of silt were deposited in the trenches dug during the 1984-85 flood (see page 60). However, a water control structure or a desilting basin was not constructed.

3. Infiltration of water in the trench was originally considered a risk. However, following the events of the 1984-85 flood emergency construction work (page 60) this is not as great a concern. Extensive soils investigations and infiltration tests had shown that soils in this area are similar and react the same as those in the area where the Little Lost River sinks completely into the ground. This proved to be the case.

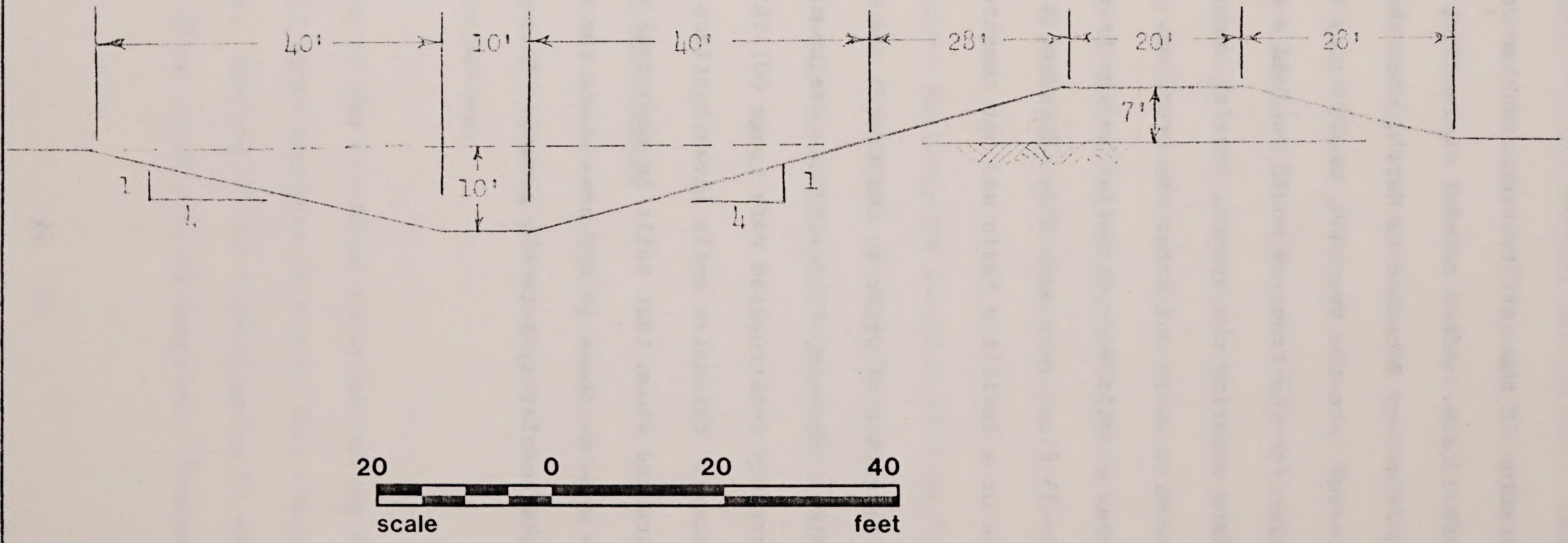
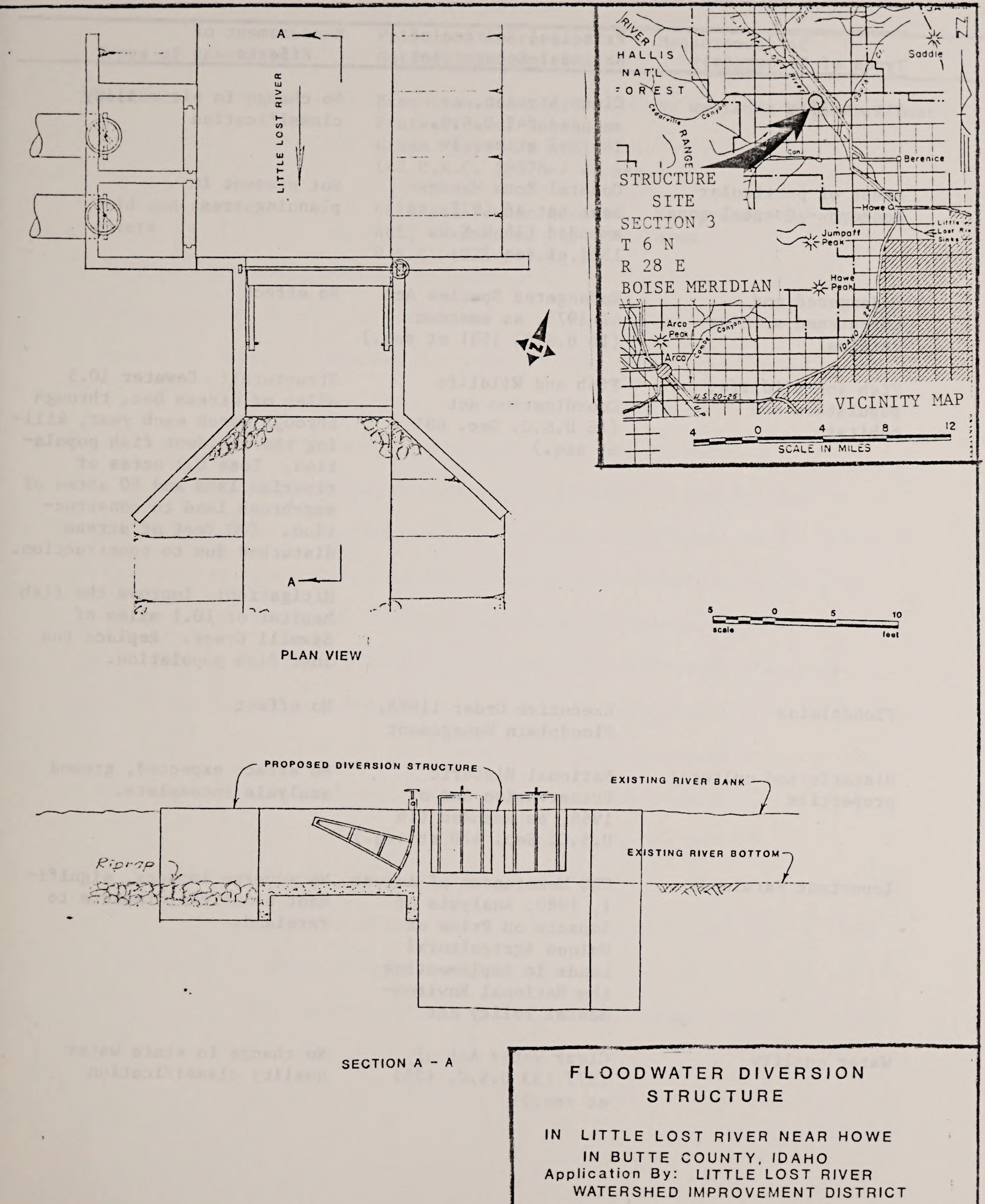


FIGURE 9

ALTERNATE 4

TYPICAL CROSS-SECTION
OF
INFILTRATION TRENCHES

FIGURE 10



FLOODWATER DIVERSION STRUCTURE

IN LITTLE LOST RIVER NEAR HOWE
IN BUTTE COUNTY, IDAHO
Application By: LITTLE LOST RIVER
WATERSHED IMPROVEMENT DISTRICT
Date April 15, 1985 Sheet 1 of 1

Table C - Effects of the Recommended Plan on Resources of Principal National Recognition

Types of Resources	Principal Sources of National Recognition	Measurement of Effects
Air quality	Clean Air Act, as amended (42 U.S.C. 1857h-7 et seq.)	No change in air quality classification
Areas of particular concern - Coastal zone	Coastal Zone Management Act of 1972, as amended (16 U.S.C. 1531 et seq.)	Not present in planning area
Endangered and threatened species critical	Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)	No effect
Fish and wildlife, population and habitat	Fish and Wildlife Coordination Act (16 U.S.C. Sec. 681 et seq.)	Structural: Dewater 10.5 miles of stream Dec. through through March each year, killing the resident fish population. Lose 0.1 acres of riparian land and 50 acres of sagebrush land to construction. 100 feet of stream disturbed due to construction. Mitigation: Improve the fish habitat of 10.1 miles of Sawmill Creek. Replace the lost fish population.
Floodplains	Executive Order 11988, Floodplain Management	No effect
Historic and cultural properties	National Historic Preservation Act of 1966, as amended (16 U.S.C. Sec. 470 et seq.)	No effect expected, ground analysis incomplete.
Important Farmlands	CEQ Memorandum of August 1, 1980; Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing the National Environmental Policy Act	No adverse impacts, significant beneficial impacts to farmland.
Water quality	Clear Water Act of 1977 (33 U.S.C. 1251 et seq.)	No change in state water quality classification

Table C - Effects of the Recommended Plan on Resources of Principal National Recognition Cont'd

Types of Resources	Principal Sources of National Recognition	Measurement of Effects
Wetlands	Executive Order 11990 Protection of Wetlands Clean Water Act of 1977 (42 U.S.C. 1857h-7 et seq.)	No wetlands gained or lost
Wild and scenic rivers	Wild and Scenic Rivers Act, as amended (16 U.S.C. 1271 et seq.)	Not present in planning area

VI. FORMULATION AND SELECTION OF MITIGATION PLAN

A. Alternative Methods of Fisheries Mitigation Considered

The following methods of mitigation were identified during the planning process. Several of these alternatives are unacceptable or unworkable for the reasons stated.

1. Fish Ladders - Unworkable, existing down stream irrigation diversions prevent fish migration.
2. Fish Screens - The diversion structure to the infiltration trenches of Alternative 4 would be screened. Screening Little Lost River below the diversion would be impractical because of widely fluctuating flows.
3. Fish Stocking/Fish Salvage - Unacceptable; Idaho Department of Fish and Game (IDFG) has designated Little Lost River as a "wild trout stream." Stocking the stream with hatchery fish would not be compatible. Fish salvage to recover and transplant fish would be very difficult in winter conditions and require a large work force. IDFG has agreed to establish an annual salvage season for anglers during the period the river is dewatered.
4. Habitat Rehabilitation - Acceptable; Little Lost River and Fallert Creek above structure.
5. Habitat Rehabilitation - Acceptable; Sawmill Creek, an upstream tributary to Little Lost River.
6. Habitat Rehabilitation - Acceptable; Lower Wet Creek, an upstream tributary to Little Lost River.

7. A reduced amount of habitat rehabilitation in combination with summer stocking of catchables (in dewatered section of Little Lost River). Stocking unacceptable, see Number 3.
8. Minimum Streamflow - Unacceptable; freezing of low winter flows and subsequent flooding would occur.

B. Selected Method of Mitigation

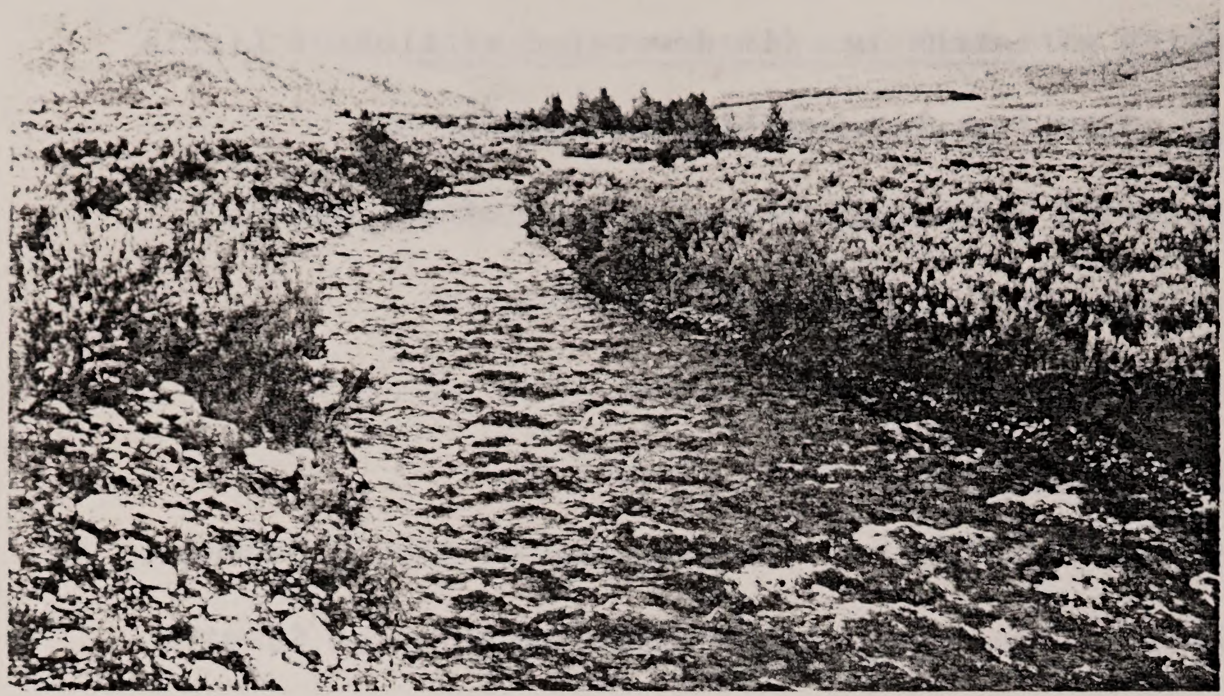
SCS, Idaho Department of Fish and Game, Bureau of Land Management, and project sponsors favor the habitat rehabilitation of Sawmill Creek (Mitigation Alternative Number 5) as the selected method to mitigate the fishery loss to be incurred with the installation of Alternative 4. On site planning sessions, inputs from public meetings, and work sessions with landowners and representatives of the Watershed Improvement District Board (WID), the Soil Conservation District Board (SCD), and state and federal agency personnel, were utilized to define, evaluate, and identify the mitigation alternatives. A concerted effort was made to obtain and incorporate public concerns, opinions, and desires. Representatives of the WID and the SCD took part in the work sessions during the planning phase of the mitigation plan.

C. Formulation of Mitigation Plan

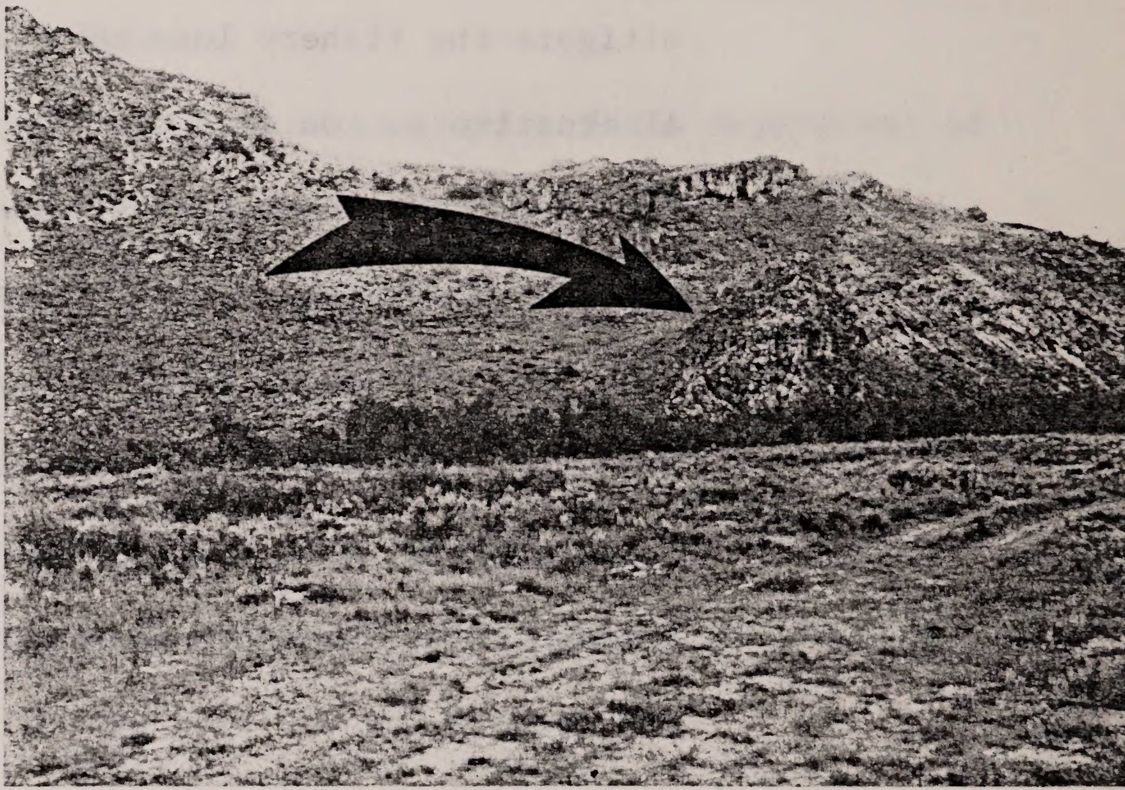
The following steps were taken to develop the mitigation plan:

1. Define mitigation objectives.

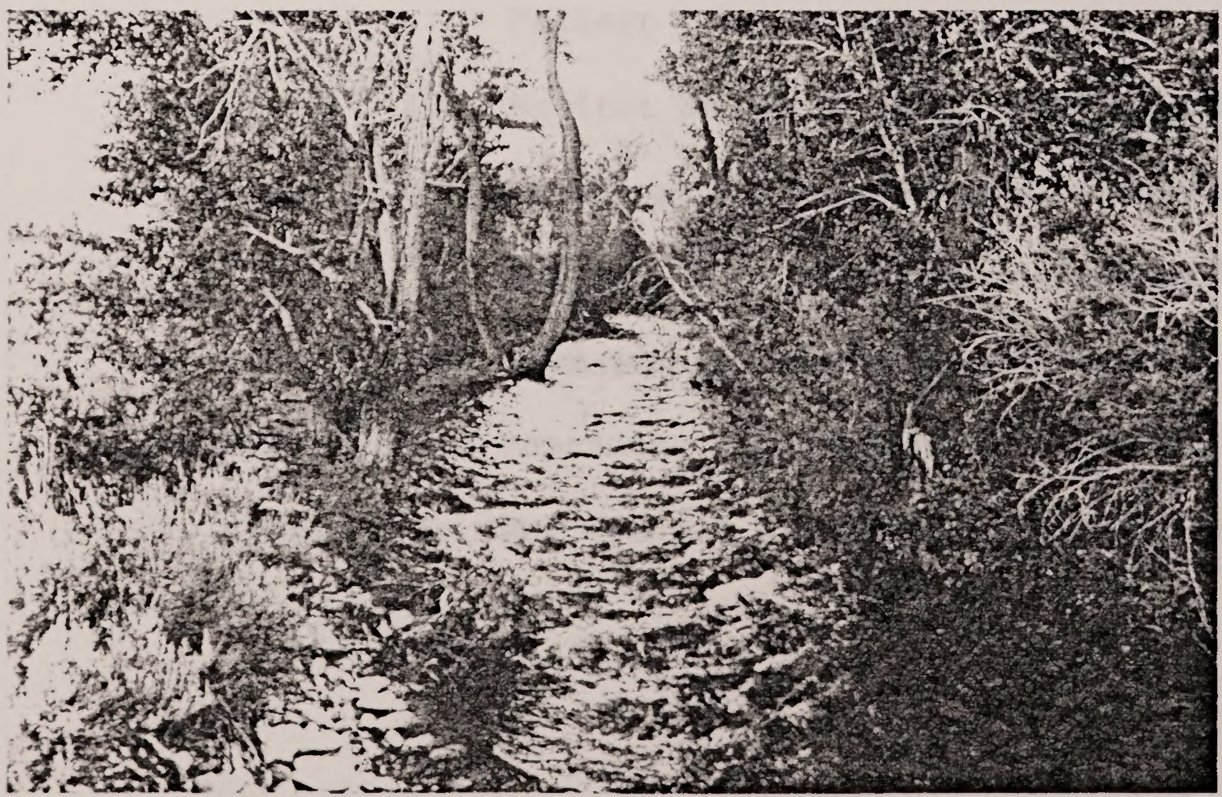
Mitigation practices to be installed by SCS shall be those directly related to establishing a permanent fishery habitat of adequate quality to replace a fishery lost as a result of



Upper Sawmill Creek mitigation measures to be installed on this stretch include: fencing boulder placement and tree plantings.



Adjacent to the mouth of Sawmill Canyon is a possible source of boulders. This is less than 1 mile from the end of the Sawmill Creek mitigation reach.



Sawmill Creek as it exits Sawmill Canyon, just above the mitigation reach. No treatments needed as wildfire, extensive livestock use and mechanical manipulation did not affect this reach.

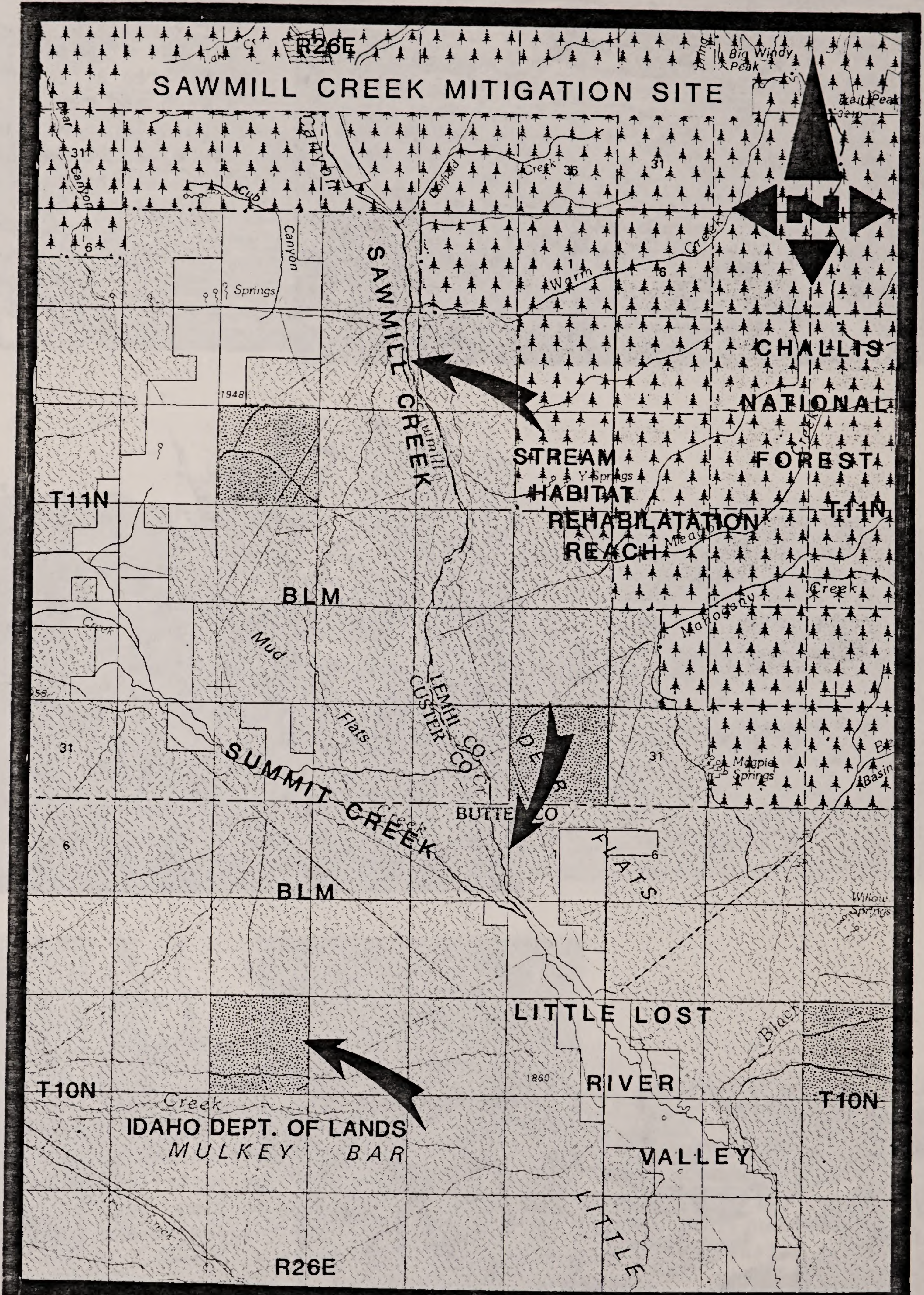
Lower Sawmill Creek, lower end of mitigation reach, area affected by braiding and mechanical manipulation. Mitigation measures to be installed include: fencing, tree plantings and rock deflectors.

Lower Sawmill Creek, riparian vegetation affected by grazing. Mitigation measures to be installed include: fencing, boulder placement, tree plantings and rock deflectors.

Upper Sawmill Creek, area affected by fire. mitigation measures to be installed include: fencing, boulder placement and tree plantings.

FIGURE

LITTLE LOST RIVER FLOOD CONTROL PROJECT



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the planned flood control measures. On site planning efforts considered all resource problems and their treatment. However, priority for installation of practices was placed on those which would achieve mitigation objectives. SCS will actively seek input and field assistance from state and federal agencies during planning, installation, and monitoring of mitigation practices.

2. Identify the stream reach of Sawmill Creek to be treated. See Figure 11, page 51.

   A reach of stream from just below the Sawmill Canyon Road bridge downstream to the USGS gaging station (approximately 7 stream miles) was selected as the reach of Sawmill Creek to treat. Reference to Figure 11, page 51. The entire segment was burned during a range fire several years ago, killing or burning off most of the riparian vegetation. The stream reach can be divided into two general segments, an upper and a lower. The upper reach has had good regeneration of native species of cottonwood trees, willows, grass and sagebrush. The streambanks are generally stable and stream channel meandering has been reduced. The lower stream reach has little or no tree or shrub regeneration because of intensive use by livestock. Grass and sagebrush are the predominant riparian vegetative species in this reach. Livestock impacts are extensive, restricting vegetative regeneration and promoting streambank erosion. The stream channel is unstable and frequently changes course. While stream meandering is a problem, channel down cutting is not. The stream bottom is heavily armored with rock which prevents down cutting.

3. Conduct an on site planning session with representatives of BLM, IDFG, SCS, and the sponsors to identify resource problems, define viable alternatives, evaluate, and to select and prioritize mitigation practices. Follow up meetings were planned to review and verify data and conclusions made during the field session.

During the session the following alternatives were identified:

a. Fencing of the streambank to prevent livestock invasion.

b. Rock riprap to protect eroding banks.

c. Shaping and grading to stabilize verticle banks.

d. Clearing and snagging to remove logs or stumps in the channel which is diverting stream flows.

e. Placement of 3 - 4 foot diameter rock in the stream at strategic places to create pools.

f. Log deflectors to direct flows away from actively eroding banks.

g. Diversions to redirect water into one channel. The practice would be used only where flows are directed out of the main channel and cannot return.

h. "K" dams or channel stabilization structures placed in the stream to create pools and prevent channel meandering.

i. Vegetative plantings of native trees and shrubs in fenced areas to provide stream shade and cover.

Following the on-site planning session, SCS met with representatives of the Idaho Fish and Game Department, Bureau of Land Management, the WID, and the SCD. During that session the proposed mitigation practices were reviewed, selected, and prioritized. During finalization of the plan, the units of application for each practice was determined. Practice application developed was designed to provide full treatment of the stream reach identified.

D. Selected Mitigation Plan

The objective of the mitigation plan is to provide for the establishment of a permanent fishery habitat of sufficient quality to replace the fishery (4,200 trout) in the impacted area.

Idaho Fish and Game stated in correspondence between the agency heads on December 21, 1984 that the "EIS mitigation plan is adequate to restore the lost fishery." SCS will work closely with IDFG to monitor the installed mitigation measures. If, after a reasonable establishment period, adequate populations are not generated, SCS will assist the local sponsors in pursuing additional funding for further mitigation work.

The following mitigation practices were selected and prioritized for their value to provide or improve fish habitat. Actual units of installation were determined by SCS, based on guidance and direction from BLM and IDFG during the planning process. Practice installation by SCS will also be guided by BLM and IDFG using the latest technology available. Reference to mitigation map, Figure 12, page 56, for general location of the planned practices.

Practice	Location	Units
1. Fencing	Entire reach	10.1 miles
2. Rock Placement	Upper reach	210 boulders, 3-5 feet in diameter
3. Vegetative Plantings	Both reaches (Emphasis on the lower reach)	
Cottonwoods		2,000 trees
Willows		2,000 shrubs
4. Log deflectors	Lower reach	4
5. Rock Diversions	Upper reach	3

VII. IMPACTS OF SELECTED PLAN

The adverse environmental impacts of installing the selected structural alternatives are discussed in detail on pages 36-42. Other impacts of installing the selected alternative are discussed below.

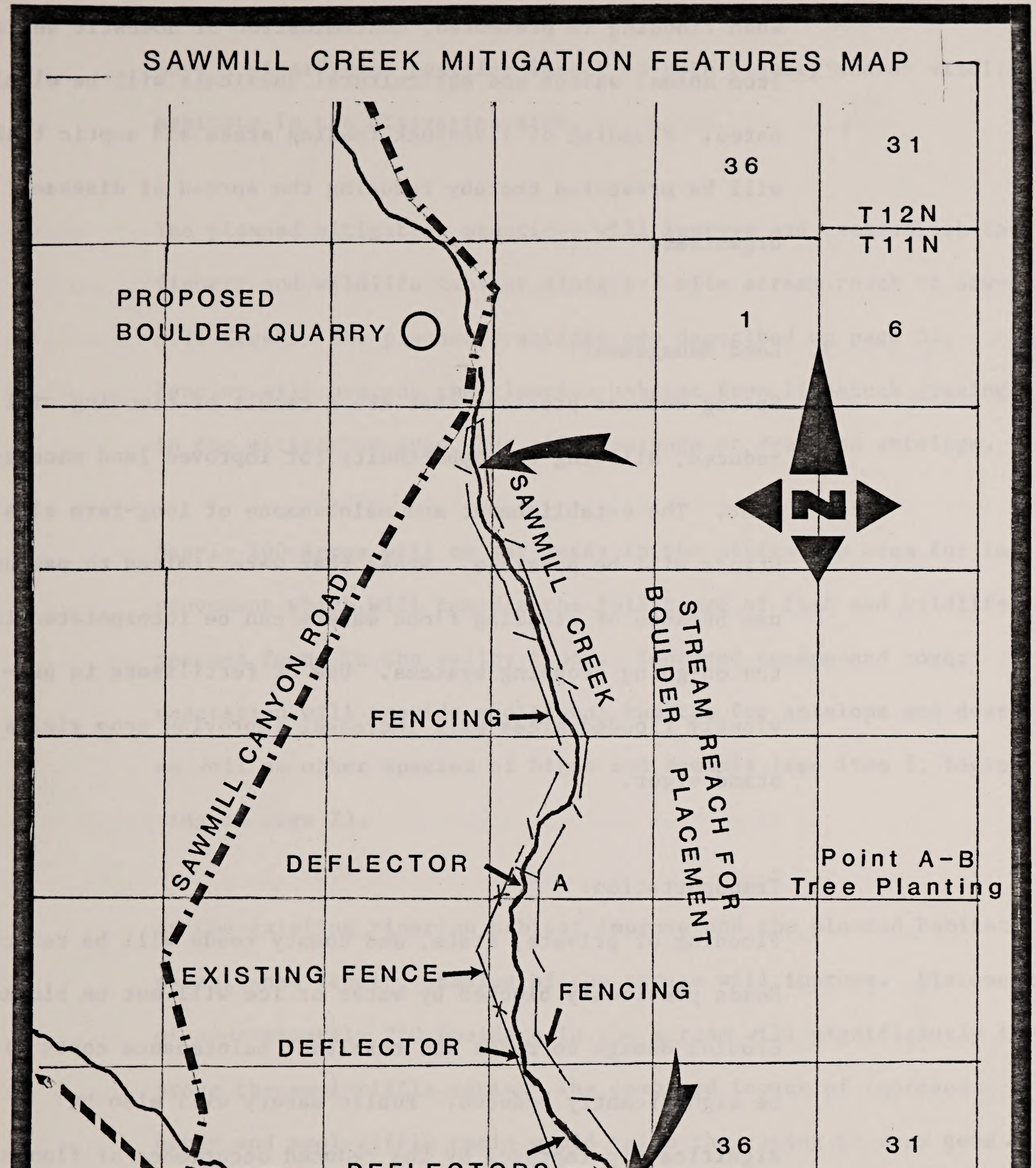
A. Structural

1. Flooding

Construction of Alternative 4 will provide flood protection from the 100 year storm event. Economic damages will be reduced from $75,400 annually to $4,400 (94%), resulting in an average annual benefit of $71,000 for the project life.

FIGURE 12

LITTLE LOST RIVER FLOOD CONTROL PROJECT



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2. Pollution:

When flooding is prevented, contamination of domestic wells from animal wastes and agricultural chemicals will be eliminated. Flooding of livestock feeding areas and septic tanks will be prevented thereby reducing the spread of disease organisms.

3. Land Management:

Spring wetness problems that are a result of flooding will be reduced, allowing the opportunity for improved land management. The establishment and maintenance of long-term alfalfa stands will be possible. Areas that were limited to pasture use because of standing flood waters can be incorporated into the on-going cropping systems. Use of fertilizers in previously flooded areas will increase, improving crop yields and stand vigor.

4. Transportation:

Flooding of private, state, and county roads will be reduced. Roads previously blocked by water or ice will not be blocked. Erosion damage to roads and resultant maintenance costs will be significantly reduced. Public safety will also be significantly improved by the reduced occurrence of flooded and icy roads.

B. Mitigation Measures

The implementation of the defined mitigation plan (page 54) will have a significant positive impact on both fishery and/or wildlife habitats in the mitigation site.

The planned mitigation practices will improve and reestablish the fishery and wildlife habitat along a 7 mile stream reach of Sawmill Creek. The planned practices are described on page 55. Fencing will protect the riparian habitat from livestock grazing in the mitigation area, but allow passage of deer and antelope.

Nearly 200 acres will be set aside in the mitigation area for improvement which will benefit the full range of fish and wildlife species found in the valley floor. Improved escape and cover vegetation will provide additional habitat for antelope and deer, as well as other species of birds and mammals (see item 5, beginning on page 7).

As the existing riparian habitat improve and the planned habitat establishes itself, shading of the stream will improve. Placement of approximately 210 boulders in the stream will significantly improve the pool-riffle ratio. The combined impact of improved cover and pool-riffle ratio would raise the rating to very good and excellent.

In comparison, the 10.5 miles of stream which will be dewatered has 5.9 miles of poor and 3.4 miles of fair pool-riffle ratio.

Two point seven (2.7) miles of riparian habitat were rated as poor and very poor, an additional 6.3 miles had fair to good cover. There was only .3 mile of excellent cover and 1.2 miles that were not even rated.

It is anticipated that 7 miles of fenced stream in very good to excellent condition will provide more than sufficient habitat to replace the lost fishery. Early planning efforts were made to establish a dollar value for the lost fishery. Idaho Fish and Game and BLM representatives used a procedure adapted to the Little Lost River to derive a $90,000 loss figure. Total mitigation costs are $129,100. While the goal of mitigation was establishment of a permanent fishery habitat and not strictly monetary retribution, the dollar figures provide a basis for comparison.

The Idaho Fish and Game Department has stated the mitigation plan is adequate to restore the lost fishery (see Appendix E, Comments).

The only potential adverse impact in the mitigation includes the quarry of rock for the stream. The quarry site is located against a rock bluff, approximately one mile from the north end of the site. Most of the rock is at or near the surface. Actually, quarry activities will be closely monitored and restricted by BLM to avoid any unnecessary excavation. While some quarry work will take place, the area quarried will not appear significantly different than the surrounding rocky bluffs.

VIII. INSTALLATION OF SELECTED PLAN

A. Emergency Construction, 1984-85 Flood

Early in the winter of 1984-85, conditions occurred which created the icing problems discussed on page 20 of this report. As a result, severe flooding again occurred in the Howe area. Because this event occurred early in the year, the potential for continued flooding through the winter was highly probable. Threatened with the probability that additional flooding would take place, which would cause damages and hardships in excess of floods experienced in the past, emergency measures were taken. The Idaho Bureau of Disaster Services and the Civil Defense coordinated efforts of the Army Corps of Engineers, Idaho Army National Guard, Butte County, SCS, BLM, and local volunteers to install a portion of the selected structural measure described in this report.

Approximately 5,300 linear feet of infiltration trench was installed. Rock placed in the stream was used as an emergency diversion. Approximately 1,100 feet of trench, the diversion structure, fencing of the structural site and installation of the mitigation plan remains to be done. It should be noted that all design hypothesis were proven during this period. The infiltration trenches operated properly, sinking the volume of water designed. Because a water control structure was not installed in the river and the total needed footage of trench was not dug, overflow of the trenches did occur for a short period. When the total footage of planned trenches and the water control diversion structure are installed, this should not be a problem.

The basic rationale which led to the selection of Alternative 4 was based on ice formation in the channel. Experience had shown that low flows would freeze in the channel in the flood prone area and cause flooding. Once the channel was blocked with ice, any further runoff would be forced out of the channel. This exact situation occurred during this flood event. Low flows froze and blocked the channel with ice. As flows continued, flooding occurred. Preemptive measures were taken because freezing began early in December. Experience had shown that freezing early in the year meant severe flooding. Attempts were made to maintain a minimum flow (15 second feet) at the point of diversion. However, these flows would freeze as soon as they entered the flood prone area.

B. Project Costs

Remaining structural measures to be installed and their costs are as follows:

Structural Works	
1. Infiltration trench (1,100 feet)	$20,400
2. Smooth and shape spoil banks of all trenches (50,000 cy)	25,000
3. Diversion structure	30,400
4. Mobilization, structural excavation, and water control	10,000
5. Fencing of structural site (7,500 feet)	7,000
6. Seeding of disturbed areas (14 acres)	1,000
Structural Installation	93,800
Administrative costs (30%)	$28,200
Land rights 1/	2,000
Total Cost-Structural Alternative	$124,000

1/ Land rights cost for the structural measure provided by BLM

Mitigation Works		
Construction cost - mitigation	$87,000	
Administrative & technical (30%)	26,100	
Land rights 2/	16,000	
Total mitigation cost		$129,100
TOTAL project cost		$253,100

C. Cost Effectiveness

The benefit to cost ratio for the measure is 1.8:1.0.

D. Method of Financing

Federal assistance for carrying out the works of improvement will be provided through appropriations to the Resource Conservation and Development Program administered by the U.S. Soil Conservation Service. Those RC&D funds will bear 100 percent of the eligible construction costs, plus those costs incurred by the agency in technical assistance for design, supervision of construction, and administration. A detailed monitoring and evaluation program will be implemented to determine long term effectiveness of installed mitigation plan. The plan will be coordinated by representatives of BLM, SCS, IF&G, and the sponsors.

Administrative and technical assistance costs will be borne by the SCS and WID as incurred by each. The cost is estimated to be $97,600 for the SCS and $2,000 for the WID.

2/ Land rights for the mitigation practices will be provided through BLM via an interagency agreement at no cost to SCS.

E. Land Rights

All land rights related to installation of the flood control and mitigation measure will be obtained by the Sponsors with no cost to the SCS.

F. Contracting and Procurement

The work will be performed by government contract and administered by the SCS.

IX. OPERATION AND MAINTENANCE

The WID will be responsible for the annual operation and maintenance of the structural and mitigation measures installed with RC&D funds. An operation and maintenance agreement will be entered into between the WID and the SCS, setting forth operation and maintenance requirements prior to execution of a project agreement.

Requirements for inspection and inspection reports will be included in the O&M Agreement and Plan.

The life expectancy of the project is 50 years.

X. UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION ACT

The WID will provide relocation advisory assistance service and make the relocation payments to displaced persons as required by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646, 84, Sta. 1894), effective as of January 2, 1971, and the regulations issued by the Secretary of Agriculture pursuant thereto. The costs of relocation payment will be shared by the measure sponsors and the SCS as follows:

Sponsoring Local Organization	Soil Conservation Service	Estimated Relocation [1/] Payment Cost
(Percent)	(Percent)	(Dollars)
4	96	0

XI. MUTUALLY AGREEABLE PLAN

Through a request of the Butte Soil Conservation District, Watershed Improvement District, the High Country Resource Conservation and Development Area Council, and the cooperative efforts of the Soil Conservation Service (called SCS), this mutually agreeable RC&D measure plan has been completed. This RC&D measure has been adopted by the High Country Resource Conservation and Development Area Council and included in the project plan as a means of accomplishing objectives for the project.

XII. AGREEMENT REQUIRED TO OBLIGATE FUNDS

This is not a fund obligating document. Financial and other assistance to be furnished by the Soil Conservation Service in carrying out the work in this plan is contingent on the appropriation of funds for this purpose. A separate agreement will be entered into between the Soil Conservation Service and the sponsors before either party

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[1/] Investigation has disclosed that under present conditions the project measure will not result in the displacement of any person, business, or farm operation. However, if relocation becomes necessary, relocation payments will be cost-shared in accordance with percentages shown.

initiates work involving funds of the other party. Such agreement will set forth in detail the financial and working arrangements and other conditions that are applicable to the specific improvements to be installed.

XIII. COMPLIANCE WITH CIVIL RIGHTS ACT

The program conducted will be in compliance with all requirements respecting nondiscrimination as contained in the Civil Rights Act of 1964 and the Regulations of the Secretary of Agriculture (7 CFR Sec. 15) which provides that no person in the United States shall on the grounds of race, color, national origin, sex, age, handicap, or religion be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any activity receiving federal financial assistance.

XIV. NO MEMBER OF CONGRESS TO BENEFIT

No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this agreement, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.

XV. CONSULTATION AND PUBLIC PARTICIPATION

Newspaper accounts and records from the SCS field office at Arco show that the first public meeting concerning winter flooding of the Little Lost River was held December 17, 1959 with nineteen (19) in attendance.

The desires of the group of landowners at that time was for exploration of various flood control alternatives to control winter flooding, ways to recharge water tables and stream channel realignment. Additional public meetings were held on the following dates:

January 18, 1971
February 8, 1973
Summer 1973 (no specific date available)
February 9, 1976
May 4, 1977
February 12-13, 1981

Other public meetings were held during this period of time but no minutes of the meetings could be found. A summary of these meetings and decisions reached is available from the SCS field office at Arco. Numerous news articles appeared in local newspapers during this time.

Recent Public Meetings and Summary

March 9, 1982 -- Public Meeting - Nine were in attendance. Group objectives and alternative planning considerations were discussed. It was determined that the number one objective of the project was flood control. The "sink" trench alternative (off channel) was selected as the most feasible. The Little Lost Watershed Improvement District was authorized to develop an RC&D measure plan for flood control. The need for a coordinated effort for evaluating the project and developing a measure plan was also discussed. Environmental concerns were expressed by a representative of Idaho Fish and Game.

Various alternatives and sites were discussed. A plan of work is needed. Representatives of SCS, BLM, Idaho Department of Fish and

Game, Idaho Department of Water Resources, Sponsors, Butte County Commissioners, and landowners were in attendance.

April 6, 1983 -- Affected Landowners Meeting, Howe, Idaho - (number in attendance not available).

J. Wixom, RC&D Coordinator; and Anthony Bennett, Soil Conservation Service; met with landowners at Howe, Idaho. Landowners stated that flooding on the lower flood plain is a yearly event. Two large floods occurred in 1943 and 1969 and the extent of these and yearly flooding were delineated. Flooding occurs between the 1st of December and the last of February. Landowners stated that the yearly ice and flooding severely affects crop production, crop rotations, and soil structure.

November 7, 1983 -- Public Meeting, Howe, Idaho - 25 were present. Representatives of ASCS, SCS, BLM, USDA-FS, IDF&G, sponsors, Butte County Commissioners, and landowners were in attendance.

Background of the project was presented by Mitch Flanagan (SCS). Progress made to date was reviewed and the structure alternatives were presented and discussed. Mike Anderson (SCS) reviewed the environmental assessment. An environmental impact statement and Mitigation Plan will be required for the loss of fish in the river when dewatering occurs. The EIS and Mitigation Plan will be developed with the sponsors, SCS, Idaho Fish and Game, and BLM. A representative of the Little Lost River Recreation District voiced support for the measure and the need for adequate flood protection before they can proceed with implementation of their recreation development plan in the area.

May 16, 1984 -- Agency and Sponsor Meeting - 16 in attendance.

Meeting was called to review progress on the Measure Plan and EIS with sponsors. The structural flood control alternatives were discussed and the sponsors preferred the off-channel infiltration (sink) trenches. The progress on the EIS was discussed by representatives of SCS, BLM, and IDF&G. Eight mitigation alternatives were presented and habitat rehabilitation on a portion of Sawmill Creek was selected for mitigation of the fishery loss due to project operation.

July 18, 1984 -- Public Meeting, Howe, Idaho.

Draft Measure Plan/EIS will be reviewed with the local public and interested agencies and groups.

A news release concerning the preparation of an EIS was published February 17, 1984 in the Idaho Falls newspaper and a Notice of Intent to Prepare an Environmental Impact Statement was published in the Federal Register on Friday, December 2, 1983.

On December 22, 1983, BLM was formally asked to be a cooperating agency on the preparation of the EIS. BLM began suppling data for the EIS in January of 1983 and has been involved in the planning process and in public meetings since 1978.

Idaho Department of Fish and Game contributed data for the EIS and has been involved in the planning process since 1961.

A scoping meeting to determine the scope of the environmental evaluation of the proposed action was held on June 15, 1983. Representatives of SCS, BLM, IDF&G, and the sponsors determined that the major areas of concern to be addressed were impacts to the fish population and possible adverse impacts on the roosting habitat of wintering bald eagles.

The Soil Conservation Service and Butte Soil Conservation District conducted informal consultations with U.S. Fish and Wildlife Service on threatened and endangered plants and animals by letter dated August 16, 1983 and January 31, 1983. The FWS representative indicated no formal consultation would be necessary under Section 1 of the Endangered Species Act if no impacts to threatened or endangered species were anticipated.

The Soil Conservation Service consulted with the State Historic Preservation Officer and State Archeologist by letter on August 17, 1983. They know of no sites at this location but requested the proposed construction site be inspected by a professional archeologist. BLM's District Archeologist will perform this inspection in July of 1984. Results will be in the Final Plan/EIS.

TABLE 1 - Estimated Cost
Little Lost River Flood Prevention Measure
Estimated Cost (Dollars) 1/

Cost Item	Units	Unit Cost (each)	RC&D Funds	Other	Total
Structural Measure					
Infiltration Trenches-Off Channel			$93,800		$93,800
SUBTOTAL			93,800		93,800
Mitigation Plan Practices					
Fencing	10.1 mi.	3,500	$35,350		$35,350
Placement of Rock	210	200	42,000		42,000
Vegetative Plantings	6150 trees & shrubs	1	6,150		6,150
Log Deflectors	4	500	2,000		2,000
Diversions	3	500	1,500		1,500
SUBTOTAL			87,000		87,000
TOTAL CONSTRUCTION COST			180,800		180,800
Administrative, Technical Assistance & Engineering (30%)			$52,300	$2,000	$54,300
Land Rights					
Structural 2/	25 ac.	80		2,000	2,000
Mitigation 3/	200 ac.	80		16,000	16,000
TOTAL PROJECT COST			233,100	20,000	253,100

1/ Price based on 1984 construction cost.

2/ Land rights cost for structural measure provided from BLM

3/ Land rights will be provided via an interagency agreement between SCS, BLM, and IDF&G.

XVI. This plan may be amended, revised, or terminated only by mutual agreement of the parties hereto.

Little Lost River Watershed
Improvement District

By:______________________________
George Woody, President

Date:____________________________

Authorized by action of the Little Lost River Watershed Improvement District at a meeting held on ____.

Butte Soil Conservation District

By:______________________________
Jack Jensen, Chairman

Date:____________________________

Authorized by action of the Butte Soil Conservation District in a district board meeting held on ____________________________________ .

USDA Soil Conservation Service

By:______________________________
Stanley N. Hobson
State Conservationist

Date:____________________________

APPENDIX A

PHYSICAL COMPARISON OF ALTERNATIVES

APPENDIX A - COMPARISON OF ALTERNATIVES - PHYSICAL

ALTERNATIVES	DESCRIPTIONS	BENEFITS	EFFECTS
1) No action.	1) Future without project action.	1) No additional cost.	1) Damages and pollution would continue every winter during cold weather.
2) Infiltration Reservoir On Channel	1) Install a dam on the river and construct a spillway structure to handle the 1% storm, with the reservoir area sized to sink 50 cfs, (100 surface acres).	1) Solve the icing problem in the channel and on the farmland near Howe. 2) Eliminate damage to building stock loss and pollution potential. 3) Solve the hazard of covering state and county highways. 4) Improve economic and social conditions. 5) Crop rotations using perennials (alfalfa) may be used in flooded area. 6) Flood water would be sunk into the aquifer instead of flooding.	1) Little Lost River will sink about six miles upstream from where it normally does. 2) Local wells will have recharge benefits. 3) The channel will be clear of ice for the spring runoff. 4) Fish loss in the lower channel will be reduced by a gradual shutdown of the dam gate (upland). 5) Wildlife habitat will improve along previously flooded sections of the river. 6) There will be short term dust and silt problems during construction.

APPENDIX A - COMPARISON OF ALTERNATIVES - PHYSICAL
(Continued)

ALTERNATIVES	DESCRIPTIONS	BENEFITS	EFFECTS
2) Infiltration Reservoir Continued			7) The cobble and rock bottom of the reservoir area will not support vegetation. 8) Potential safety hazard of a dam on the river regardless of water holding ability.
3) Infiltration Reservoir Off Channel	1) The winter flow would be diverted from the river to an off channel pond, high flows would remain in the river. Sizing the same as Alternative #1.	1) Same as 1-7 under alternative #2.	1) Sames as 1-7 under alternative #2. 8) Potential safety hazard would be less than a dam on the main channel. 9) A large water control spillway type of structure would not be needed only a diversion structure similar to alternatives 3 & 4.
4) Infiltration trenches Off Channel	1) Approx. 5280 ft. of 10-foot deep trenches would be dug off channel. A concrete diversion structure would divert the winter river flow. Six surface acres needed, plus several drop structures.	1) Same as 1-7 under alternative #2.	1) Same as 1-7 under alternative #2. 8) The entire sink branch area of about 30 acres will need to be fenced.

APPENDIX A - COMPARISON OF ALTERNATIVES - PHYSICAL
(Continued)

ALTERNATIVES	DESCRIPTIONS	BENEFITS	EFFECTS
5) Diversion to Stevens Reservoir	1) The delivery ditch to Stevens Reservoir would be rebuilt as a sink trench, with the reservoir for overflows.	1) Same as 1-5 and 7 under alternative #2.	1) Same as 1-7 under alternative #2. 8) The water sink near this reservoir may be lost from the Little Lost water table. 9) The old dam may need repair. 10) Part of the spring creek channel would be lost as a fishery. ard would be less than a dam on the main channel.

APPENDIX B

ESTIMATED AVERAGE ANNUAL FLOOD DAMAGE REDUCTION BENEFITS

APPENDIX B

Estimated Average Annual Flood Damage Reduction Benefits
Little Lost River RC&D Measure Plan, Idaho

(Dollars) 1/

Item	Estimated Average Annual Damage		Damage Reduction Benefits
	Without Project	With Project	
Floodwater			
Crop and Pasture	44,300	3,700	40,600
Other Agricultural	15,200	400	14,800
School and Churches	9,000	100	8,900
Roads and Channel	6,900	200	6,700
TOTAL	75,400	4,400	71,000

1/ Price base: current normalized prices for cropland and pasture; 1984 prices for all other.

APPENDIX C

SUMMARY
INCREMENTAL ANALYSIS

APPENDIX C

Incremental Analysis
Little Lost River RC&D Measure Plan, Idaho

Average Annual Dollars

Level of Protection	Total Annual Cost $	Incremental Cost $	Total Annual Damage $	Incremental Flood Damage Benefits $	Benefit Cost Ratio of Increment
Without Flood Protection	0		75,400		
5 Yr. Level of Flood Protection (20%)		33,250		44,900	1.35 to 1
	33,250		30,500		
10 Yr. Level of Flood Protection (10%)		1,550		5,500	3.55 to 1
	34,800		25,000		
50 Yr. Level of Flood Protection (2%)		2,860		16,100	5.63 to 1
	37,660		8,900		
100 Yr. Level of Flood Protection (1%)		1,620		4,500	2.78 to 1
	39,280		4,400		

APPENDIX D

LIST OF PREPARERS AND QUALIFICATIONS

APPENDIX D
(Continued)
LIST OF PREPARERS AND QUALIFICATIONS

NAME	TITLE	EDUCATION		EXPERIENCE	OTHER
		(Degree(s))	Contin. Educ. Subjects	(Titles & Years in Job)	(Licences, etc.)
BLM District and Staff					
James A. Esget	Dist Hydrologist	B.A. Math 2 yr. grad Hydrol. Secondary Teach. Cred.		Hydrol Tech 1 Hydrol USGS 3 Wat Res Eng 1	
Robert McCarty	Wildl. Biologist	B.S. Range/Wildlife		Wildl. Biologist 8 Mgmt.	
Tommy Gooch	Sup. Range Con	B.S. Range Management		Range Con, Mt.,BLM 5 BLM, Range Con 1 Sup. Range Con, NV 1 Sup. Range Con 6	
Darwin Jeppeson	Soil Scientist	B.S. Soils, Utah SU		SCS Soil Scientst 9 BLM Soils Scientst 8	
Idaho Department of Fish and Game					
Virgil Moore	Res. Fish Mgr.	M.S. Zoology B.S. Biology		Reg. Fish Mgr. 3 Fish Res. Biologist 3	

APPENDIX D
LIST OF PREPARERS AND QUALIFICATIONS

NAME	TITLE	EDUCATION		EXPERIENCE		OTHER
		(Degree(s)	Contin. Educ. Subjects	(Titles & Years in Job)		(Licences, etc.)
SCS Resources and Planning Staff						
Mike Somerville	State Resource Con	B.S. Range Sci & Nat. Res.	University of Oklahoma	SRC Area Consv Dist. Consv	1	
Ralph Fisher	Res. Plng. Spec.	B.S. Agronomy	Water Res Plng Env. Assessments	Soil Consv Dist. Consv Area Res Con	3 4 6	
Jim Shelton	Ag. Economist	M.A. Ag. Econ.	Vocational Ag. teacher		3	
Floyd Bailey	State Cons. Agronomist	B.S. Agronomy	Erosion Conrol Env. Assessments	Agronomist Dist. Cons Soil Cons	7 14 2	A.S.A. Certified Agronomist
Mike Anderson	Wildlife Biologist	B.S. Wildlife Sci M.S. Wildlife Sci	Water Quality Env. Assessments	Wildlife Bio. Soil Cons Dist. Cons	7 3 2	Certified Wildlife Biologist
SCS Area and Field Office Staff						
Mitchell Flanagan	Dist. Cons	B.S. Agronomy		Dist. Con Range Con	6 2	
Oliver P. DeArman	Area Res. Con.	B.A. Biology		Plant Mat Sp in Haiti Dist Con. Soil Cons	5 5 3	

APPENDIX E

LETTERS AND COMMENTS RECEIVED ON DRAFT PLAN-EIS

FEB 20 1985

JAMES A. MC CLURE, IDAHO, CHAIRMAN

MARK O. HATFIELD, OREG.	J. BENNETT JOHNSTON, LA.
LOWELL P. WEICKER, JR., CONN.	DALE BUMPERS, ARK.
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MALCOLM WALLOP, WYO.	HOWARD M. METZENBAUM, OHIO
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FRANK H. MURKOWSKI, ALASKA	JOHN MELCHER, MONT.
DON NICKLES, OKLA.	PAUL E. TSONGAS, MASS.
CHIC HECHT, NEV.	BILL BRADLEY, N.J.
JOHN H. CHAFEE, R.I.	
JOHN HEINZ, PA.	
DANIEL J. EVANS, WASH.	

MICHAEL D. HATHAWAY, STAFF DIRECTOR
CHARLES A. TRABANDT, CHIEF COUNSEL
D. MICHAEL HARVEY, CHIEF COUNSEL FOR THE MINORITY

United States Senate

COMMITTEE ON
ENERGY AND NATURAL RESOURCES
WASHINGTON, D.C. 20510

February 12, 1985

Stanley N. Hobson
State Conservationist
Soil Conservation Service
304 North Eighth Street
Room 345
Boise, Idaho 83702

Dear Stan:

I have received the Draft Little River Resource Conservation and Development Flood Prevention Plan and Environmental Impact Statement. I will review the plan and make comments by April 2, 1985 if necessary.

Thank you for keeping me up to date on flood control measures in Idaho.

Sincerely,

Jim

James A. McClure
United States Senator

McC:jwl

SOIL
CONSERVATION
COMMISSION
801 South Capitol Blvd., Boise, Idaho 83702 (208) 334-2148

Members:
Harold Bell
Lester Clemm
Ervin Gilbert
Lowell Grim
Eugene Thomas
Administrator:
Wayne Faude

March 12, 1985

Stanley N. Hobson
State Conservationist
USDA-Soil Conservation Service
Rm. 345, 304 N. 8th Street
Boise, Idaho 83702

Dear Stan:

We have reviewed the draft Watershed Plan for the Little Lost River, RC&D Flood Prevention Plan located in Butte County, Idaho.

The Commission concurs with the selected Off Channel Infiltration Trenches plan.

Sincerely,

Wayne

Wayne R. Faude
Administrator

WRF:nw

Idaho Department of Lands

AR 8 1985

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION X
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

MAR 5 1985

REPLY TO
ATTN OF: M/S 443

Stanley N. Hobson
State Conservationist
Soil Conservation Service
304 North 8th Street, Rm. 345
Boise, Idaho 83702

Dear Mr. Hobson:

The Environmental Protection Agency (EPA) has reviewed the draft Little Lost River Flood Control Measure Plan and Environmental Impact Statement (DEIS) distributed by your office. The DEIS evaluates alternative measures of controlling annual ice-caused flooding on the Little Lost River in Butte County, Idaho. Each alternative involves completely dewatering the lower several miles of the river each winter. The following are EPA's comments and rating of the DEIS in accordance with our responsibility under Section 309 of the Clean Air Act to determine whether the impacts of proposed Federal actions are acceptable in terms of environmental quality, public health, and welfare.

We understand that the U. S. Army Corps of Engineers, on an emergency basis as declared by the Governor of the State of Idaho, has effectively completed the first stages of construction of the preferred alternative. Because of this, it is important that the mitigation plan be implemented as quickly as possible so that the overall impacts on the functional habitat value of the Little Lost River are minimized.

Fish loss will be an annual event under the preferred alternative since any fish passing downstream of the diversion structure (that do not migrate back upstream, or cannot due to existing irrigation structures) will be caught in the dewatered reach. The final document (FEIS) should estimate the magnitude of this yearly loss, and evaluate whether the mitigation plan adequately restores all lost fish productivity. In conjunction with this, the feasibility of screening the diversion structure should be evaluated. Screening would ensure that there would be only a one-time loss of fish as downstream migration and subsequent mortality could not occur. Cost of installing screens could be weighed against the long-term yearly fish production losses that would result in their absence. It would seem that the potential for successfully increasing production upstream (as a result of the mitigation plan for Sawmill Creek) would be greatly enhanced if there were no possibility for that production to be lost in the dewatered reach.

4. We understand that alternatives other than those discussed in the DEIS were evaluated early in the scoping process. It would be helpful if the FEIS included a brief section on "Alternatives Eliminated from Further Consideration" to help document the scoping process. For example, construction of dikes or levees would initially seem to be a less drastic alternative than dewatering 10.5 miles of the river. An explanation of why this may not be feasible is necessary as justification for its not being considered in detail.

EPA appreciates the difficulty of the situation on the Little Lost River, in terms of the environmental trade-offs required to protect the human environment. The Butte Soil Conservation District and the U. S. Department of Agriculture, Soil Conservation Service, have done an admirable job of addressing these issues. It is, however, unfortunate that questionable land-use practices of the past have led to the need for such drastic alterations of the natural environment in this area.

Based on our review and in consideration of the above comments, the draft Little Lost River Flood Control Measure Plan and EIS is rated EC-2 (Environmental Concerns - Insufficient Information). A copy of the EPA rating system for EISs is enclosed.

Thank you for the opportunity to review the DEIS. If you have any questions or wish to discuss this project further, please contact Brian Ross of our EIS and Energy Review Section at (206) 442-8516 or FTS 399-8516.

Sincerely,

Robert S. Burd
Director, Water Division

Enclosure

cc: IOO, D. Martin
IDF&G, V. Moore
USFWS, J. Wolflin

SEE ATTACHED SHEET FOR "RESPONSE TO COMMENTS"

Attachment to letter from Robert S. Burd, Director, Water Division, U.S. Environmental Protection Agency, Region X, dated March 5, 1985

Response to comments

Comment No.

1. In consultation with Brian Ross, fishery Biologist for Region X, EPA, Seattle, we feel that the magnitude of the yearly fish loss below the proposed structure will be small due to the influence of the 2 major fish migration barriers (see text page 10). The first one is only 0.8 miles downstream from the proposed structure and local data is not available to base a downstream migrate estimate upon.

2. Idaho Fish and Game stated in correspondence between the agency heads on December 21, 1984 that the "EIS Mitigation Plan is adequate to restore the lost fishery." SCS will work closely with IDF&G to monitor the installed mitigation measures. If, after a reasonable establishment period, adequate populations are not generated, SCS will assist the local sponsors in pursuing additional funding for further migitation work.

3. See the discussion on fish screens on page 24 of the document.

APR 22 1985

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

ER-85/260

APR 18 1985

Mr. Stanley N. Hobson
State Conservationist
Soil Conservation Service
304 North Eighth Street, Room 345
Boise, Idaho 83702

Dear Mr. Hobson:

We have reviewed the draft environmental statement, Little Lost River Flood Control Plan, Butte County, Idaho, and have several comments.

1/ Page 13, Table B — There is one plant, Antennaria arcuata, that may be found within the project area that has Federal standing. Antennaria arcuata is a Resource Category 2 [1/] plant, suggesting that the Fish and Wildlife Service (FWS) needs more biological information before we can determine if listing or some other consideration would be the best course to take. The document's use of the term "Endangered" here is a misnomer in that the only time a species is designated as threatened or endangered is after it is listed under authority of the Endangered Species Act. The term(s) endangered and/or threatened used in the "Idaho Redbook" [2/] are only guidance terms and have no Federal legal standing.

Species of concern to the Federal endangered species program are listed in the Federal Register, December 1980 and its supplement, published in the Federal Register, November 1983. The Idaho Redbook is an excellent resource test, but it does not constitute the final reference to the Federal status of listed, proposed or candidate plant species, nor does it officially designate a plant as threatened or endangered.

The plant, Silene scaposa var. lobata, has been recommended as a watch list plant for possible inclusion as a Federal candidate species, but has not yet been recommended by the Redbook Committee for that status. Therefore, we do not consider it as a plant of Federal concern.

Gilia polycladon, shown in Table B, is not found in the Idaho Redbook nor is it found in the Federal Register.

[1/] Resource Category 2 comprises taxa for which information now available indicates that listing the taxa as endangered or threatened is possible but for which substantial data on biological vulnerability and threat(s) are not currently known.

[2/] 1981. Forest, Wildlife, and Range Experiment Station Bulletin No. 34, University of Idaho, Moscow.

We wish to reiterate that the only plant that may be found within the project area (listed in Table B) that has any Federal status is Antennaria arcuata. It lacks a Federal designation as threatened or endangered.

2/ Page 38, paragraph 1 — It is stated that the design of the diversion structure will allow water to be diverted without being affected by ice, and reference is made to Figure 9. However, the design of the structure is not shown on that diagram nor have we found any description of the proposed structure in sufficient detail to explain how it will accomplish the intended purpose.

3/ Page 38, Section B, Risk and Uncertainty — Brief reference is made to allowing flows back into the river. It is not clear under what conditions this would be done and for what purpose. Other unresolved questions concern ice formation in relation to the proposed structure: for example, what is an adequate depth to keep anchor ice from forming; how will this depth be maintained; and will surface ice form? Finally, it would be advisable to provide an estimate of the maximum design flow that can be dissipated in the infiltration trenches in the event of high flows such as occurred in the spring of 1969 (from 140 cfs on March 31 to 304 cfs on April 4).

The analysis should address the possibilities of freezing in the infiltration trenches before infiltration can occur. Moreover, the potential for subsurface water-level mounding beneath the infiltration trenches should be considered. If mounding can be anticipated, its possible significance and effects should be addressed. The possibility and effects of freezing of the subsurface flow within the channel sediments should also be considered.

Thank you for the opportunity to comment on this proposal.

Sincerely,

Bruce Blanchard

Bruce Blanchard, Director
Environmental Project Review

Response to comments

Comment No.

1	Comments have been researched and incorporated into the document.
2 & 3	An additional Figure displaying the planned inlet structure has been added to the text. A section was also added which describes the operation of inlet headworks and infiltration trenches in relation to stream flows and icing.

March 3 1849

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Idaho State Office
3380 Americana Terrace
Boise, Idaho 83706

IN REPLY REFER TO: 1791 (933)

April 4, 1985

Mr. Stanley N. Hobson
State Conservationist
Soil Conservation Service
304 N. Eighth Street, Room 345
Boise, ID 83702

Dear Mr. Hobson:

We have reviewed the draft Little Lost River Flood Control Measure Plan and Environmental Impact Statement (EIS). Several concerns were identified that need to be addressed in the final EIS. Our concerns and recommended actions are discussed below:

Cultural Resources

There needs to be documentation of compliance with the National Historic Preservation Act (7 CFR 656 and 36 CFR 800). Our review indicates that a cultural resource (archaeological) inventory has not been completed, the State Historic Preservation Officer (SHPO) has not been consulted nor afforded the opportunity to review the draft EIS, the Advisory Council on Historic Preservation has not been afforded the opportunity to review the draft EIS, and the project has been constructed. We recommend the following actions to meet cultural resource program requirements:

1. Revise the EIS to describe the existing on-the-ground situation and explain the conditions and circumstances regarding project construction to date.

2. Conduct a BLM Class III cultural resource inventory to locate and evaluate any cultural resources damaged by project construction, and document the results in the final EIS. Our Idaho Falls District Office should be contacted as soon as possible to schedule the inventory.

3. Prepare a mitigation plan for our review on any cultural resources on public lands which were damaged by the project. This mitigation plan needs to be described and committed to in the EIS.

4. Explain in a letter to the SHPO and Advisory Council why the inventories and consultation were not completed early in the planning process, why the cultural resources were not addressed in the Draft EIS, and why the SHPO and Advisory Council were not afforded the opportunity to comment on the Draft EIS, if they were not.

5. Carry out the cultural mitigation plan after SCS and BLM complete the necessary consultation with the SHPO and Advisory Council.

6. Make revisions in the final document in the following places:

Page iii. This list of agencies, institutions, and interested parties from whom written comments were requested, must include the Idaho State Historic Preservation Officer and the Advisory Council on Historic Preservation.

Page 14. Archaeological and Historic Resources. The inventory and site evaluation and procedures in 7 CFR 656 should have been accomplished before preparation of the draft and must be completed before preparation of the final EIS, and then documented.

Page 30. Environmental Consequences. There needs to be a discussion of environmental consequences to cultural resources in this section.

Page 42. Formulation and Selection of Mitigation Plan. Mitigation planning for cultural resources needs to be addressed here.

Page 59. Public Input. This section states "BLM's District Archaeologist will perform this inspection in July of 1984." This inventory was not requested nor assigned to our District Archaeologist and the inventory has not been accomplished. This inventory needs to be completed and documented. Refer to No. 2. above.

7/ Threatened and Endangered Species

Informally consult with the U.S. Fish and Wildlife Service to determine if Threatened or Endangered (T/E) animals or plants are in the project area and if their habitat has been, or will be, adversely affected. The results of this consultation need to be documented in the final document. This concern is addressed on pages 35 and 58 in the draft document. Both plants and animals need to be addressed.

8/ Permits Required

The necessary land use authorization by BLM needs to be identified on page 29.

The extent to which BLM lands would be required and impacted, and the type and extent of impacts, needs to be addressed for each alternative and the mitigation plan. Land requirements and impacts should be identified in acres or miles, whichever is appropriate.

If you need any assistance in revising the final document, please let us know. We would also like the opportunity to review the final document before it is published.

Sincerely yours,

Larry L. Woodard

Larry L. Woodard
Associate State Director

SEE ATTACHED SHEET FOR "RESPONSE TO COMMENTS"

Attachment to letter from Larry L. Woodard, Associate State Director, Bureau of Land Management, dated April 4, 1985.

Response to comments

Comment No.

1 A new section was added to the text describing the 1984-85 emergency construction, and the remaining structures and their costs.

2 The SCS-RFO requested in writing April 9 the preparation of the Class III inventory. The inventory was scheduled and conducted during the week of May 6. No cultural and/or archeological resources were found.

3 & 5 Since no cultural and/or archeological discoveries were made, these comments were not addressed.

4 SHPO was contacted in writing on August 17, 1983 and provided a description of planned measures and a location map. SHPO responded on September 1, 1983, indicating there were no known sites in the project area. They also scheduled a field trip for the week of September 6, 1983 to verify their finds. No further response was received from SHPO so in March 1985, the RFO followed up with them to determine the results of the plan. During a BLM-SCS field planning session, it was pointed out by BLM representatives that the Little Lost-Birch Creek Grazing EIS covered the proposed construction sites but BLM had the responsibility to inventory the specific sites. A verbal request was made by SCS at that time for completion of the appropriate surveys, and were told the surveys would be completed. SCS did not follow up with a written request and BLM did not conduct the survey. A misunderstanding between agencies. On April 1, 1985 the BLM Deputy State Director for Renewable Resources wrote a letter to SHPO describing this miscoordination.

6 Comments have been incorporated in the text.

7 An informal consultation with USF&W has been made and documented in SCS files.

8 Appropriate assistance has been provided to the sponsors in preparation of the 404 permit. Specific quantities for the planned facilities have been added to the text.

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
WALLA WALLA DISTRICT, CORPS OF ENGINEERS
BUILDING 602, CITY-COUNTY AIRPORT
WALLA WALLA, WASHINGTON 99362 - 9265

March 29, 1985

REPLY TO
ATTENTION OF:
Planning Division

Mr. Stanley N. Hobson
State Conservationist
United States Department of Agriculture
304 North Eighth Street, Room 345
Boise, Idaho 83702

Dear Mr. Hobson:

This letter is in response to your Draft Environmental Impact Statement that you sent to our District concerning the Little Lost River. The document was forwarded to the Environmental Resources Branch for review.

As discussed in your telephone conversation with Mr. W. E. McDonald, we have reviewed the Draft Environmental Impact Statement for the Little Lost River project. Our review does not reveal any effects on navigation or hydropower development. Moreover, we have reviewed the project for flood control and hydrologic concerns and have found no inadequacies.

We have enclosed comments concerning a Section 404 permit for your use in developing the Final Environmental Impact Statement.

We appreciate the opportunity to comment on this project. Should you need any additional information, please contact Mr. W. E. McDonald at (509) 522-6627 or FTS 434-6627.

Sincerely,

L. V. Armacost

L. V. Armacost
Chief, Planning Division

Encl

COMMENTS
LITTLE LOST RIVER FLOOD CONTROL MEASURE PLAN

The following comments are provided relative to the Draft Environmental Impact Statement (DEIS) on the Little Lost River Flood Control Measure Plan.

1. As mentioned on page 29 of the DEIS, a Department of the Army Section 404 permit will be required for the diversion structure and that approximately 60 days are required to process an application for a permit.

2. A description and illustration of the diversion structure should be included in the Final EIS. The description should include the type and volume of material to be used, the dimensions, and method of construction.

3. Will the river be diverted during construction?

4. Will temporary cofferdams be required?

5. Will the diversion structure disrupt the movement of indigenous aquatic organisms?

6. What provisions are made to prevent freezing on the screens?

7. There should be a discussion of work accomplished under emergency authority. The infiltration channels have already been constructed. The work accomplished represents a commitment of resources.

Response to comments

Comment No.	
1	Appropriate assistance by SCS is being provided to assist the sponsors prepare the 404 permit.
2-6	A section has been added which addresses each of these concerns.
7	A section has been added which describes the present situation and emergency construction.

Encl

MAR 25 1985

IDAHO DEPARTMENT OF FISH AND GAME
600 South Walnut • Box 25
Boise • Idaho • 83707

March 21, 1985

Mr. Stanley N. Hobson
Soil Conservation Service
304 North Eighth Street, Room 345
Boise, Idaho 83702

RE: Little Lost River Flood Control Measure Plan Draft EIS

Dear Stan:

Department of Fish and Game (IDFG) personnel have reviewed the draft environmental impact statement for the Little Lost River Flood Control Measure Plan. Based on experiences during the winter of 1984-85 and past discussions, the Department has the following comments.

During the winter of 1984-85 high water necessitated emergency
measures be taken to construct sink trenches defined in
Alternative 4. The Soil Conservation Service (SCS) did a good
job in coordinating emergency construction to meet design
criteria of the proposed SCS plan. The SCS actions helped reduce
future project expenses and insure the construction was sound
from both engineering and environmental viewpoints. Measurements
by BLM indicate each trench had the capacity to sink 25 to 28 cfs
during 1984-85, thereby verifying estimates proposed in the EIS.
From the information available, Alternative 4 appears to be a
*1/ viable and preferred solution to the winter flooding. *Due to
emergency construction measures of 1984-85, the project costs
should be greatly reduced and the EIS should reflect prior
construction activities undertaken by Army Corps of Engineers
(ACE) and the county.

2/ The recreational values listed on page 33 are from 1972 and are the most recent values available to IDFG. However, they should be footnoted as minimums due to recreational use increases which have occurred between 1972 and 1985.

3/ The draft EIS indicates mitigation will improve 10.1 miles of Sawmill Creek (pages 47-49). Based on the map on page 48 and topographic maps, the treated section of Sawmill Creek is approximately seven miles.

Other Additional Comments

4/ Page 8 - Ferruginous hawk should also be included in the paragraph on upland wildlife.

5/ Page 11 and Page 34 - The sentence on bald eagle food habits should be corrected to read ... or carrion (mostly antelope and deer) and lagomorphs (jackrabbits and cottontail rabbits). Carrion and lagomorphs become more important...

6/ The peregrine falcon is an endangered species. Ferruginous hawks are being considered a candidate for threatened status.

7/ One of our major concerns with Alternative 4 is the potential of antelope falling through the ice. The trenches are located in antelope winter range and along an antelope migration route. The number of antelope migrating through the west side of the valley is approximately 500 to 1,500 animals depending on the year. There are usually 350 to 800 antelope wintering in the vicinity of the trenches. The Idaho Department of Fish and Game monitored antelope use of the area during the winter of 1984-85 to assess the magnitude of the problem. We observed 200 antelope in the immediate vicinity of the trenches and tracks indicated that antelope crossed the trenches on several occasions. At least one animal fell through the ice but managed to escape.

Two conditions in the trenches were noted that concerned us.

1. The main trench has water flowing into it all the time. The ice is thicker at the far end of the main trench than it is near the diversion. Depending on the ambient temperature and the distance from the diversion, the ice is dangerously thin and antelope attempting to cross run the risk of falling through. The zone of thin ice will not always be in the same position in the main trench. This compounds the problem because the entire trench could be dangerous at one time or another during the winter. Therefore, antelope cannot learn where it is safe to cross.

2. The auxiliary trench does not have water flowing into it all the time. During periods of high flows the main trench fills and then spills water into the auxiliary trench. The auxiliary trench then fills. During periods of extreme cold or low precipitation, flows in the Little Lost go down and the auxiliary trench freezes then dries up. If the second trench is covered by ice when it dries up, the ice will cave-in forming a "V" in the trench. This sloping "V" of ice forms a very dangerous trap to animals particularly if the trench subsequently fills partially with water. During the winter of 1984-85 these conditions were observed in the auxiliary trench. Evidence of antelope falling through the ice in the auxiliary trench was observed.

Our experience during the 1984-85 winter strongly suggests that antelope mortality will periodically occur in these trenches. We, therefore, feel that both trenches should be fenced to prevent antelope mortality. The fence should be antelope-proof (48" high, net wire or five to six strand barbed wire bottom wire 4").

Sincerely,

for Jerry M. Conley
Director

JMC:SE:JN:dnb

cc: U.S. Fish and Wildlife Service
Bureau of Land Management, Idaho Falls
Bureau of Program Coordination
Bureau of Fisheries
Region 6

Response to comments

Comment No.	
1	A section has been added to describe the measures installed during the 1984-85 emergency flood prevention work, the costs of that work and the remaining costs.
2, 4 5 & 6	Appropriate changes have been made in the text.
3	The correct mileage figure is 7 miles. This figure was used elsewhere in the text, but the miles of fence for the mitigation area was accidentally picked up and used.
7	There was never any question by SCS as to the need for fencing. This had been included in total structural costs and not shown as a line item. The final shows fencing as a line item.

MAR 1 1985

Feb. 27, 1985

Little Lost River Project

Stanley Hobson
Soil Conservation Service
304 North 8th St, Room 345
Boise, Idaho 83702

Dear Mr. Hobson:

I have some comments and concerns regarding your proposed flood control project on the Little Lost River near Howe, as described in the recent EIS for that project.

The EIS says that you are proposing to divert all the water out of the 10.5 mile stretch of the Little Lost River just above Howe each year from December through March. This project would be to prevent flood damage to farmland and other agricultural property, roads, a school, and a church; which annual damage averages $75,400. The project is expected to prevent all but $4,400 of this damage. It would cost $449,600 ($87,000 of this for mitigation), all to be paid by federal funding, with an expected project life of 50 years.

I have concerns about this proposal:

1. While the project is not a huge one, it would dry up 10 miles of of a river which supports a diverse aquatic community, including fish. It would eliminate an estimated 4200 trout, with the former population never returning to present levels. It would also reduce quality and quantity of public recreation on the 3.1 miles stretch of public land.

   Is a compromise lower winter flow feasible; an amount which would not lead to ice jams and floods, but which would still support the fish?

2. Is the project really needed? Since the beneficiaries are paying none of the costs, but rather relying upon the federal government to fund the entire project, it is difficult to tell how badly it is needed. Why does the full funding have to come out of the federal treasury?

3. If the project is built, and the Little Lost is dryed up in the winter as indicated by the draft EIS, then I support the proposed mitigation on Sawmill Creek, and would be concerned that the funding for this not be cut.

Thank you for your consideration of these comments.

Sincerely,

Jerry Jayne

Jerry Jayne
1568 Lola St.
Idaho Falls, Id.
83402

SEE ATTACHED SHEET FOR "RESPONSE TO COMMENTS"

Attachment to letter from Jerry Jayne dated February 27, 1985.

Response to comments

Comment No.

1 The section(s) which addresses this problem has been rewritten to more clearly describe the physical situation which causes icing in the river. The flood situation which activated emergency construction in 1984-85 displayed again the relationship of low stream flows, channel icing, and flooding. The attempt to manage an incomplete system again showed that low stream flows cannot be maintained in the river and prevent flooding.

2 Flooding in the area is a major concern to property owners being flooded, to city and county officials, to State Legislators, and to the public in general. During public meetings held throughout the planning process, no one expressed opposition to the measure. Considerable discussion took place on the evaluation and selection of the structural alternatives, and the need for mitigation, but no recorded opposition to the project as a whole. The public supports the measure.